

Alois A. Paulin
Leonidas G. Anthopoulos
Christopher G. Reddick *Editors*

Beyond Bureaucracy

Towards Sustainable Governance
Informatisation

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Springer

Editors

Alois A. Paulin
Institute of Computer Aided Automation
Vienna University of Technology
Vienna
Austria

Christopher G. Reddick
Department of Public Administration
The University of Texas at San Antonio
San Antonio, TX
USA

Leonidas G. Anthopoulos
Project Management Department
Technological Educational Institute (TEI)
Larissa, Thessaloniki
Greece

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Preface

The title of this edited volume is deliberately chosen in aim to draw attention to research beyond well-trodden paths—set in the broader context of research on technology for governance, *Beyond Bureaucracy* addresses the question how radical technological innovation may transform the power of citizens and the conceptual sovereign body to actively control (rather than passively observe and follow) government agencies and governmental agents. The contrast to mainstream research is deliberately chosen—where traditional research ambitions under terms such as e-government, e-governance, and e-democracy focus on providing and/or studying technology that supports the work and mission of traditional state agencies and state agents (and as such aim to innovate incrementally, if at all), *Beyond Bureaucracy* aims to provide an incubator for ideas, visions, and thoughts that aim to step *beyond* the boundaries of existing frameworks.

Part I (Beyond Bureaucracy) of this volume is focussed on further exploring the “*beyond*”. *Zach Bastick* first provides a discussion on the transformational potentials of technology on society that have gone out of focus over the decades of e-democracy research and practice. This is followed by *Alois Paulin*’s discussion on the potentials of technical sciences to cause radical innovation in the context of *Beyond Bureaucracy*. Next, *Frank Bannister* reminds of the values the bureaucratic state bears for the stability and integrity of public values, while *Uroš Pinterič* explores how the role of the state is to be understood from the new perspectives of the information society.

Part II (Disruptive Innovation for Governance) deals with emerging disruptive concepts for governance, where twentieth-century technology can act as an enabling factor. First, an overview over participatory budgeting, where citizens get a say in how public finances are distributed, is provided by *Ligia Helena Hahn Lüchmann*. Also, *Alicja Mikołajewicz-Woźniak* addresses innovation in the fiscal domain by exploring virtual currencies as a disruptive approach to credit transfer in the digital age. *Morten Kallestrup* contributes by a chapter on recent changes in the European ICT standardisation framework, which adds value by raising awareness for standards as a type of regulations that are generated and adhered-to by a stakeholder community itself.

Part III (Crowd Sourcing Governance) shifts to the various forms and applications of crowd-sourcing, which can be applied in the governmental context. Thus, *Alina Ostling* provides an overview of citizen engagement projects, which give citizens (as the users of government services) power to report on corruption, or provide general feedback on the service received. *Rodrigo Sandoval-Almazan* et al. describe a case where undocumented public transport routes were reconstructed by citizens. *Evika Karamagioli* et al. provide an overview over technology-supported crowd-sourcing projects for constitutional design, and *Filipe Montargil and Vitor Santos* report on European initiatives in which environmental indicators are monitored through citizen observatories.

Part IV (Mass Online Deliberation) is about online deliberation, which ranges from structured forms such as e-petitioning (*Catherine Dumas* et al. provide an overview of this tool for collective political action) and mass online deliberation (*Cyril Velikanov and Alexander Prosser* shall discuss on this) to unstructured and dispersed online discussions in social media and the like, which yet can, as *Yuri Misnikov* et al. argue, be used as a relevant source for forming public policy.

Part V (e-Government Trends), finally, provides an overview over the recent trends in technology-supported governance which aim at optimising existing institutional structures and improve the sentiment of citizens towards their governments. To this end, *Grzegorz Makowski* first provides an overview over bureaucratic corruption, arguing that technology-enabled transparency and open government can reduce corruption and increase citizen trust in governmental institutions. A tool for assessing and optimising costs of governmental institutions is presented by *Yannis Charalabidis* et al., which can help governmental decision makers to assess the value of digitalizing services of existing institutions. An interesting example of optimising satisfaction in citizen-to-government interaction is presented by *Sarah Hartmann* et al., who portray the US-American 311 initiative, a multichannel single point of contact to governmental agencies.

Part V, and thus the volume itself, concludes with *Sokratis Katsikas and Stefanos Gritzalis*' critical portrayal of the state of play in terms of digitalization in Greece, which once again emphasises that progress lies not in the mere introduction of digital technologies to modernise traditional institutions, but instead, that transformations must follow a radical/disruptive approach.

Vienna, Austria
Larissa, Greece
San Antonio, TX, USA

Alois A. Paulin
Leonidas G. Anthopoulos
Christopher G. Reddick

Contents

Part I Beyond Bureaucracy

Digital Limits of Government: The Failure of E-Democracy	3
---	---

Zach Bastick

Beyond Bureaucracy	15
-------------------------------------	----

Alois Paulin

In Defence of Bureaucracy: Governance and Public Values in a Digital Age	27
---	----

Frank Bannister

A Trans-Disciplinary Approach Towards Understanding the State in the Information Society Era	49
---	----

Uroš Pinterič

Part II Disruptive Innovation for Governance

Participatory Budgeting and Democratic Innovation: Some Analytical Variables	63
---	----

Lígia Helena Hahn Lüchmann

Virtual Currencies as the Starting Point for Changes in Financial Ecosystem	79
--	----

Alicja Mikołajewicz-Woźniak

The New Governance of ICT Standards in Europe	97
--	----

Morten Kallestrup

Part III Crowd Sourcing Governance

Social Innovation in Practice: Opportunities for Citizens and Governments	117
--	-----

Alina Ostling

Going Beyond Bureaucracy Through Gamification: Innovation Labs and Citizen Engagement in the Case of “Mapaton” in Mexico City	133
Rodrigo Sandoval-Almazan, J. Ramon Gil-Garcia and David Valle-Cruz	
Participatory Constitutional Design: A Grassroots Experiment for (Re)Designing the Constitution in Greece	151
Evika Karamagioli, Mary Karatza, Stephania Xydia and Dimitris Gouscos	
Citizen Observatories: Concept, Opportunities and Communication with Citizens in the First EU Experiences	167
Filipe Montargil and Vitor Santos	
Part IV Mass Online Deliberation	
What Do the People Think?: E-Petitioning and Policy Decision Making	187
Catherine Dumas, Teresa M. Harrison, Loni Hagen and Xiaoyi Zhao	
Mass Online Deliberation in Participatory Policy-Making—Part I	209
Cyril Velikanov and Alexander Prosser	
Mass Online Deliberation in Participatory Policy-Making—Part II	235
Cyril Velikanov and Alexander Prosser	
Converting the Outcomes of Citizens’ Discourses in the Cyberspace into Policy Inputs for More Democratic and Effective Government	259
Yuri Misnikov, Olga Filatova and Andrei Chugunov	
Part V e-Government Trends	
From Weber to the Web... Can ICT Reduce Bureaucratic Corruption?	291
Grzegorz Makowski	
Public Services Reengineering Through Cost Analysis and Simulation: The eGOVSIM II Platform	313
Yannis Charalabidis, Petros Stamoulis and Aggeliki Androutsopoulou	
Citizen Relationship Management in Local Governments: The Potential of 311 for Public Service Delivery	337
Sarah Hartmann, Agnes Mainka and Wolfgang G. Stock	
Digitalization in Greece: State of Play, Barriers, Challenges, Solutions	355
Sokratis K. Katsikas and Stefanos Gritzalis	

Part I

Beyond Bureaucracy

Digital Limits of Government: The Failure of E-Democracy

Zach Bastick

Abstract While the Internet is often touted as a revolutionary technology, it might be noted that democratic institutions have witnessed no digital revolution through the Internet. This observation leads this chapter to argue that the field of e-democracy has generally failed to live up to its own reformist rhetoric. It argues that instead of reforming government processes through technology, e-democracy projects have tended to focus either on lowering the costs and increasing the efficiency of existing political processes or on analysing the civic participation that occurs outside of purpose-built e-democracy platforms. The chapter suggests that this lack of attention to the Internet's potential for systemic change in formal political institutions has little normative impact on the democratization of society and may even re-enforce, rather than challenge, the sociopolitical status quo. Further, it suggests that the current approach of e-democracy risks normalizing the Internet to the norms and expectations of the offline world. To elucidate this argument, this chapter overviews both the general trend of e-democracy projects and criticisms of those projects. Finally, the chapter proposes a more radical vision of e-democracy that, it suggests, would usher a larger potential for democratization. This more radical vision of e-democracy consists of recognizing the attributes of the Internet that transcend the limits of the analogue world and applying these to democracy. Such an approach would open the path for envisaging new political processes and systems, allowing the field of e-democracy to live up to its own rhetoric, and affording society the means to address multiple of the centuries-old problems faced by democracy.

Z. Bastick (✉)

Department of Government, Harvard University, Cambridge, MA, USA
e-mail: zachbastick@fas.harvard.edu

Introduction

The relatively new fields of e-government and e-democracy have largely focused on the potentials of the Internet to support and deepen democracy. They have sought to leverage the Internet to promote more transparent government, increased accountability, citizen-centred services, distributed association, simplified petition and contestation, more responsive representatives, and the re-engagement of citizens. Yet, while these advances introduce technology into government, they fail to leverage technology to fundamentally transform government. This chapter will discuss the limitations of e-democracy projects in defining a strong direction for reforming government through technology. It will build the case that the potential of e-democracy touted by the discipline's own rhetoric has not been achieved and that, to more fully achieve this potential, a radical vision of e-democracy must be adopted. To develop and support this argument, the chapter will, first, situate reformist rhetoric within the early radical aspirations associated with e-democracy. It will then argue that both e-democracy projects and criticisms of those projects have largely diverged from these aspirations—and that this divergence may have contributed to promoting incremental improvements in government processes over fundamental advancement of those processes. Finally, the chapter will argue that future research needs to move beyond the framework of past approaches in order to fulfil e-democracy's core promise of fundamentally reforming government and deepening democracy.

The Lost Foundations of E-Democracy

The aspiration to democratize society through electronics can be traced to an epoch well before the Internet, and indeed before the mass commercialization of personal computers—e-democracy might be said to have arisen from an electrical vision of distributed democracy in a largely analogue era. On 9 April 1940, Buckminster Fuller, the American author and architect, envisioned a system of futuristic distributed voting whereby citizens would vote from their homes using telephones. Following the commercialization of television, in the 1962 preface to his book, Fuller extended this possibility to two-way televisions. At a time of growing dictatorships, Fuller wrote that electrified voting ‘...promises a household efficiency superior to any government of record because it incorporates not only the speed of decision which is the greatest strength of the dictator, but additional advantages which can never be his’ (Fuller 1971, p. 11). Having citizens vote on issues from home would be collaborative—certifying ‘spontaneous popular co-operation in the carrying out of each decision’ (Fuller 1971, p. 11). This constant input from citizens would allow a rational progression of the governance process—‘continuous correction of the course, or even complete reaction, should (and as) experience indicate desirability, without political scapegoating’ (Fuller 1971, p. 11). In telephones and

television, and more precisely in their architecture, Fuller saw the potential for a more active role for citizens, as well as the establishment of a new relation between the citizen and the state.

The e-democracy literature rarely explicitly recognizes its lineage to Fuller. Yet, the significance of a tracing e-democracy to Fuller is not only historiographical—it is also thematic and methodological. While chronology might place Fuller's proposal on the outskirts of what might contemporarily be considered as 'e-democracy', the concept of household voting envisioned by Fuller can be situated within the e-democracy lineage because it reassesses political processes through information and communication technologies (ICTs). In this sense, Fuller's 'electrified voting' transcends simple novelty in engineering to breach the realm of technology with the realms of political theory and philosophy. He presented no plan for how such a system would work in practice but proposed its possibility—the system may work or it might not work, but, he argued, it should at least be considered (Fuller 1971, p. 12). The qualities of this consideration, even if intangible and practically unrealized, provide a bedrock for what radical e-democracy might become, even if it still has not almost a hundred years later: it challenges the perceived limits of the physical world, highlights the ideals of our societies, and reconsiders how democracy might attain these ideals.

Political theory and philosophy have played a central role in the development of e-democracy, even if these considerations might be minimized today in favour of a focus on the incremental development of government through technology. The distributed, neutral, and fast nature of the Internet distinguishes it from previous large-scale communication technologies, including from those Fuller toyed with, such as radio and television. The architectural uniqueness of the Internet has been cast, especially by academics, as an opportunity to democratize society to unprecedented levels. Perhaps this is in part because the digital world allows bypassing constraints on democracy imposed by the non-digital world. The 1990s saw the growth of a technological counterculture, with the growth of utopian rhetoric predicting an 'Internet revolution'; indeed, even politicians, such as Howard Dean, explored the prospect of democratic deliberation through electronic town meetings. In the 2000s, the collaborative and distributed nature of the Internet leveraged by Web 2.0 highlighted the potential for participatory renewal through collaborative technology. In the 2010s, the use of technology by social movements around the world to associate, challenge the status quo, and sometimes topple totalitarian governments from the ground up further fuelled the rhetoric associated with e-democracy. Paulin (2015) has written of 'powerful myths' fuelling the integration of technology and government—and indeed, the framing of e-democracy as a revolutionary field has been shaped by the amorphous and varied phenomena, platforms and events of the last three decades.

Yet, despite the rhetoric, it seems implausible to attribute fundamental political changes to the field of e-democracy. Normatively, the role of political theory and philosophy is perhaps minimized today in favour of playing 'catch up' with the technological developments. Empirically, e-democracy has focused either on (1) building platforms for democracy or (2) analysing use of the Internet occurring

outside of e-democracy platforms. E-democracy platforms include e-voting (the online version of voting), e-petitions (the online version of petitions), and portals that allow citizens to email their representatives (the online version of telephoning or writing a letter to government). These tend to leverage the Internet's architecture to lower the costs of existing processes or to make these processes more efficient. Yet they have for the most part failed to galvanize public opinion, foster a mass renewal in participation, challenge core problems of democracy, or fundamentally reform political processes.

On the other side of the e-democracy field are projects that apply outside theories and constructs (especially social, psychological, and economic constructs) to analyse participation occurring on the Internet that is perceived as being significant to democracy. For example, a multitude of e-democracy studies have analysed social media that have facilitated the decentralized organization of mass movements (such as Occupy) as well as revolutions (such as the Arab Spring) through the Internet. While both the platforms developed by e-democracy and the analysis of participatory politics occurring outside of e-democracy borrow and add momentum to the radial rhetoric of e-democracy as a field, it is rare that these two approaches to e-democracy fundamentally question the democratic processes or envision the creation of new ones through technology. Further, it is perhaps telling that the activity deemed to have democratic significance that is most frequently analysed in e-democracy is activity occurring outside of purpose-built e-democracy platforms.

The attention that the Internet has drawn for its potential for radical change appears not to have resulted in any radical change for democracy: power relations within Western societies have perhaps been entrenched rather than altered, and the centuries-old structures that in democracy are expected to translate societal values to political outcomes remain largely unchanged. The field of e-democracy which by its name asserts to bridge electronic technology and democracy, and further to this might be assumed to promote democracy, has been largely inert in attempting to realize radical changes to democracy. To grasp the extent of this inertia, the following section will explore the approach of e-democracy towards 'civic participation', which due in part to its central significance for political theory, is a common theme in e-democracy research.

Wariness Towards Digital Novelty: The Example of Participation

Radical visions of e-democracy have met strong criticism from within the e-democracy field that challenge the significance of Internet phenomena to formal political application. It was a common aspiration amongst the utopians of the 1990s that the Internet would democratize society. This was largely associated with the Internet having a distributed architecture and allowing cheap and neutral communication over large distances. It was also coupled with high expectations of citizens'

motivation, ability, and wishes—framing the Internet as a conduit for such democratic virtues as increased citizen participation in government. Hence, multiple models of e-democracy have taken the approach that providing a platform for participation through the Internet will itself contribute to democratizing society. This ‘if you build it they will come’ was based on, as it has been framed by Paulin, a ‘purified image of a reinvented, new and better government, serving a new generation of omnirational, tech-savvy citizens’ (Paulin 2015, p. 1). While some scholars have theorized that the Internet does promote engagement because of its architecture and the cyberspace that emerges from it (e.g. Benkler 2006), numerous academics have argued against this, suggesting that the Internet either does not provide significant opportunity of participation or that it does not stimulate political engagement. Indeed, amongst others, Buchstein (1997), Sunstein (2009), Margolis and Moreno-Riaño (2013), and Shapiro (1999) have argued that Internet use may weaken rather than strengthen political participation. Common amongst these views is that, ‘central features of the Internet... generally undermine the sort of public sphere and political interaction that is required for genuine democratic deliberation’ (Bohman 2004, p. 131), thus fundamentally limiting Internet-based e-democracy. These two criticisms—that the Internet does not provide the conditions necessary for democracy and that e-democracy overlies on an unreasonable expectation of participation—are two prevalent criticisms of the field that may have stumped the development of Internet-based participatory democracy models.

The premise of these criticisms is partly based on the notion that online exchange lacks some of the communicative intricacies of face-to-face interactions. For one current of thought, this notion promotes equality and rational discussion—the minimized social context of Internet-based communication may bode well for democracy by reducing socio-economic prejudice as income, education, race, and skin colour are not immediately displayed (Witschge 2004, pp. 116–117). Yet for another current, computer-mediated communication does not eliminate such discrimination but supports the development of non-visual methods of identifying socio-economic qualities and alternative criteria for judging others (Kollock and Smith 2002). Further, beyond the immediate lack of general socio-economic cues, there may also be a lack of the social cues that are postulated to foster thick online communities, including those indicating trust, familiarity, stability, and social pressure (Van den Hoven 2005, p. 53). The lack of these hints, it is argued, reduces social interaction to a state where association is impeded, thus ‘eroding the supply of social capital so critical to democracy’ (Chambers et al. 2005, p. 125), and consequently limiting the formation of cohesive communities that support genuine, rational–critical exchange. For others, the online world is so far removed from what is perceived to be the ‘real world’ outside of the Internet that heavily relying on the Internet threatens awareness of reality. According to this perspective, communicating extensively through computers leads to a process of ‘de-realization’, which in turn creates artificial desires and needs (Buchstein 1997, p. 250). By distancing citizens from political and social realities, computer-mediated communication may limit the ability of citizens to ascertain issues and grasp the viability of potential solutions. The general notion underlying these criticisms of e-democracy is that the

Internet and ICTs are unable to provide as rich of an environment as the offline world, and it is consequently concluded that any form of e-democracy that relies heavily on online association and deliberation will necessarily be less effective than the current, non-virtual democratic processes of the offline world.

A similar criticism of e-democracy is that the quality of democratic participation on the Internet is not sufficient to fulfil the assumptions of many normative models of democracy and may instead lead to political polarization. From one perspective, this has to do with the lack of inclusion in the Internet demographic. From another perspective, it has to do with the dynamics of online participation and the outcomes of that participation. Anonymity and distance promoted by computer-mediated communication have been postulated to encourage uncivil deliberation that is neither rational nor critical. This finds evidence in discourteous, unaccepting, and disrespectful online behaviour. The phenomenon of ‘flaming’ is perhaps the most obvious of these. Although Witschge recognizes that ‘anonymity and the absence of social presence, which seemed so promising for democracy, can instead work against a genuine democratic exchange’ (Witschge 2004, p. 115), she advocates that rules and guidelines can increase civility and notes further that ‘we do not know whether these online uncivil behaviours have the same effect as the offline ones would have’ (Witschge 2004, p. 116). Additionally, there is a fear that Internet users are unwilling to critically question their own opinions and weigh those of others, but instead seek out interaction with like-minded individuals (Bellamy and Raab 1999; Sunstein 2009). According to Bellamy and Raab (1999), this would lead to a balkanization of politics and a fragmentation of the online sphere. Such views have been largely supported by empirical studies of online deliberation (Wright and Street 2007, p. 852). Buchstein (1997) assimilated this to a process of ‘show and tell’ wherein users exposit their arguments independently from others, but doing so in such an aggressive manner that it becomes a process of ‘show and yell’. Finally, there is a fear that if electronic discussions gain importance, it would foster extreme views as individuals are increasingly fostered within their own communities. This strongly challenges the ability of the Internet to inform citizens and form consensus.

An additional common criticism of e-democracy is that it overly relies on rational participation. Whether online or offline, and whether through deliberation or voting, participatory democracy demands political engagement from citizens. Citizens are expected to take time to understand, review or monitor, and act on the political agenda—a far cry from the sometimes-held idea of the modern citizen as alienated and apathetic. Technology can be viewed as either enhancing or reducing political various ideals. As Iyengar and Ansolabehere (2010) argue, for instance, campaign advertising over televisions help to inform citizens about candidates, but may promote a ‘spectacle democracy’ that supports consuming politics rather than actively contributing to it. Support that new approaches to technology might (contrary to traditional uses of television) promote participation came perhaps most fervently from Becker and Slaton, who claimed that Televote projects ‘profoundly contradict the portrayal of the American “couch potato”, a nation full of potbellied male dolts who would never swap their six-packs of beer and recliners in front of

the television set for Styrofoam cups and plastic chairs at a public policy forum' (Becker and Slaton 2000, p. 95) and insisted that 'almost all of the designers of these projects have been amazed at the gratitude of ordinary citizens for being asked and included' (Becker and Slaton 2000, p. 95). Yet, criticism of this basic premise that citizens are motivated to participate more actively in politics, a criticism to which Becker and Slaton were responding, has been an explicit challenge to e-democracy from the earliest days of the formal discipline. For instance, as early as 1987, in his survey of television and telephone-based e-democracy, Christopher Arterton 'found little support for the notion that citizens have the interest necessary to sustain near universal participation' (Arterton 1987, p. 197). Still today, along these lines, e-democracy is sometimes viewed as being unrealistic and overly ideal—as Matt Qvortrup states, e-democracy is seen as 'an ideal pursued by super-engaged citizens, not as a serious contribution to increasing public participation' (Qvortrup 2007, p. 67). In addition to the question of whether citizens are motivated in the absolute sense—that is whether they would participate more directly in politics if given the chance—is the question of whether citizens may be motivated by ICTs in the relative sense—that is whether the Internet might foster greater participation than did the pre-Internet world.

Despite optimism from utopians that the Internet will lower boundaries to participation, the validity of the expectation that the Internet will engage users has been the focus of both theoretical and empirical challenges. One approach is that the sheer amount of information online increases information costs above any reduction that might occur because of the Internet's architecture. This argument that users suffer from 'information overload', whilst being of a rationalist perspective, suggests that the Internet may actually be detrimental to democracy as too much information is spent on filtering information rather than accessing new information. As van den Hoven states, 'the average citizen is not willing to incur the information cost and transaction cost associated with political deliberation' (Van den Hoven 2005, p. 53). Another approach is that the rationalist perspective is too narrow and that a simple cost-and-benefit perspective fails to address more complex problems inhibiting motivation. Christopher Arterton, writing about television and telephone models, postulated that lowered costs of communication would not increase participation to the degree required by plebiscitary notions of e-democracy. For Arterton, the issue of motivation appears to transcend rationalist weighing to a deeper rooted lack of interest in politics—he writes that 'in practice, too few are interested enough to make plebiscites a feasible means of policy making' (Arterton 1987, p. 197) and estimates that if citizens were given the opportunity for direct democracy through ICTs, 'probably around two thirds will not participate' (Arterton 1987, p. 197). Although Bimber (1998) suggested that the Internet may allow for higher paced government in which representatives respond to issues from emergent groups, he also dispelled the ideal that the Internet increases participation from the bottom-up. Bimber noted that although cross-sectional data does show that citizens who are more informed participate more than those who are less informed, longitudinal data does not support this. As he writes, 'none of the major developments in communication in the Twentieth Century produced any aggregate gain

in citizen participation. Neither telephones, radio, nor television exerted a net positive effect on participation, despite the fact that they apparently reduced information costs and improved citizens' access to information' (Bimber 1998, p. 57). Turning to the Internet, Bimber found that political interest was less associated with using the Internet than watching television or reading newspapers, and that donating money was the only type of participation that aligned with Internet use (Bimber 2001, p. 53).

New Technology, Old Ideas: The Core Problem and Risks of E-Democracy

What is missed by the usual conversations in e-democracy, but becomes increasingly obvious as the field's research is contrasted with its rhetoric, is that new technology permits the exploration of new ideas. Having largely circumvented this point, e-democracy has replicated old ideas using new technology. This might be at least in part due to a lack of awareness as to what makes the Internet unique in relation to the pre-Internet world, or to a lack of creativity as to how to apply this uniqueness of the Internet to politics. The dangers of this tendency of e-democracy to apply the Internet to further the status quo are multiple. First, there is missed opportunity of unrealized potential. Second, there is the risk of normalizing the Internet to the offline world through future technical, social, or legal decisions—chopping down the unique tangled branches of the Internet so as to form a ubiquitous, but standardized and characterless square that more easily integrates our current development needs.

The Internet has largely been applied to further the political status quo rather than exploring alternative democratic futures. That is instead of realizing the potential of the Internet to produce alternative power structures or political processes, e-democracy has largely sought to assess how the Internet can replicate existing democratic processes: Bulletin Board Systems, Usenet, Facebook, Twitter, and Meetup may have facilitated association and civic action at previously unattainable levels, but when used in e-democracy they largely reproduce the processes behind or provide an interface to, offline association and communication; urban democracy projects such as Paris' *DansMaRue*, which allows Parisians to report broken benches or graffiti to the city, do little more than replace other municipal communication channels; local democracy platforms, such as the use of Twitter in the Spanish town of Jun, supplement or replace bureaucracy, but keep fundamental processes of representation in place; online campaigning and new media may provide an edge to tech-savvy campaigns—facilitating political communication in much the same way as they did for Howard Dean, or increasing the base of campaign financing as they did for Barack Obama—but they do not deeply change political systems; e-voting and online petitions may facilitate consultation of citizens by governments but, even in nations such as Estonia that have deployed

electronic voting at the large scale over multiple election cycles, these new tools of e-democracy only reproduce existing processes behind offline voting and contacting representatives.

This is not to say that e-democracy exactly replicates offline ‘tools’ of democracy—online petitions on an official government website, with supporting legislation, do facilitate identifying policy issues and public opinion distinctly and more efficiently than do form letters or phone calls to representatives, and likewise, online voting distinguishes itself from offline voting, and through this distinction might lower burdens and increase participation. However, it is to say that for a large part e-democracy reproduces the ‘*processes*’ behind offline forms of participation. For example, online voting automates, but does not change the way electoral systems work—candidates must still be presented to citizens, citizens must still actively cast votes, and votes are still tallied similarly to how they were before. Indeed, by the time an election ends—and citizens have streamed campaign videos to their mobile phones, commented on attack ads in threaded discussions, associated through social media groups and hashtags, assessed and discussed the political platforms of the candidates, and optimistically clicked their mouse buttons on the name of their preferred candidate—it may very well be that, in the grand scheme of politics, representation, and power relations, very little has changed.

Similarly, criticisms of e-democracy fall into the same trap of replication—but replicate assumptions rather than processes. For instance, the retort that e-democracy should avoid deliberate models because the Internet does not uphold many assumptions of the offline world sidesteps the potential for deliberate models based on alternative assumptions. Whereas it is conceivable that the Internet might not provide the social cues necessary to foster the ‘thick communities’ of the local town hall, or the ‘rational deliberation’ of the highly formalized meetings of experts and bearcats, it is also conceivable that it provides other assets for democracy. Indeed, e-democracy could frame the uniqueness of the Internet as an asset for democracy—and through this reframing, thick communities consisting of anchored identities may give way to ephemeral communities of fluid identities, wherein membership may be dynamic in much the same way that human spontaneity and intellectual exploration can be dynamic. Similarly, anonymity might be reframed from permitting unconstructive discourse (e.g. flaming and trolling) to, instead, allowing the removal of an identity-centred threat imposed on the civic discourse of individuals by society. The lack of the threat of having one’s intellectual production linked to a single personal identifier (such as a name) might free individuals from society’s traditional reliance on consistent identities, to allow individuals to participate with alternative and even conflicting identities. If e-democracy recognizes these unique attributes of the Internet, it can explore a larger array of alternative political futures.

It is unclear as to whether the prescriptive approach common in e-democracy will continue and, if it does, what the relevance of the field will be to modernity. In a very specific sense, as Internet penetration has increased and user behaviour shifted, it is questionable whether many of the criticisms mentioned in the last section remain true today. For example, contrary to Bimber, a cross-modal study by

Ansolabehere and Schaffner (2014) found that, on three nearly identical surveys conducted by Internet, telephone and mail, opt-in Internet, respondents were more politically informed than respondents from the other modes. In addition, they were more likely to report contributing to political campaigns and to obtain less of their news from television (Ansolabehere and Schaffner 2014, pp. 11–12). Xenos and Moy (2007) found from an analysis of the 2004 American National Election Studies that there is only mixed support for both the rationalist and the psychological approach—the authors found that information acquisition and use conforms more to the rational perspective while more general political and civic participation conforms more to psychological perspective. More generally, the simultaneous development of Internet phenomena and the integration of the Internet in daily life increasingly highlight the tensions between ageing political institutions and the modern society that those institutions serve. From this more general perspective of the zeitgeist, it is conceivable that there might be an increasingly evident societal need for a reformed e-democracy field that is Internet-sensitive and non-prescriptive.

The dangers of continuing the current approach of the e-democracy field are multiple. First, framing the digital world through traditional, pre-digital perspectives limits advances to those that fit within those traditional perspectives. This may suppress the emergence of new perspectives. Like Maslow's law of the instrument—'if all you have is a hammer, everything looks like a nail' (Maslow 1965, p. 15)—viewing the digital world through a pre-digital lens obscures new aspects of the Internet that may be fundamentally different from the offline world, and thus whose application might fundamentally impact the offline world. In the field of e-democracy, seeking out how Internet technologies can be mobilized within the confines of our existing governance risks maintaining the status quo and overlooking alternative political structures and futures. This favours incremental changes based on the lowest common denominator of shared attributes between the Internet and society. This is in part because applying the architecture of the Internet to existing political structures may have quantitative results (such as increasing efficiency and lowering costs), but does not bring into question the underlying processes that those structures support. Second, disregarding the unique attributes of the Internet may in turn minimize or suppress these attributes in a process of normalization. Without a base to protect these unique attributes of the Internet, the Internet may be normalized to the offline world. This may occur to fit the traditional expectations or structures of society. Over the last two decades, this has been witnessed in digital access and controls aiming to protect pre-digital commercial interests (such as the movie or music industries) from emerging methods of association and cultural production (e.g. peer-to-peer and remix culture). Finally, the incremental developments favoured by e-democracy, taken together, risk further strengthen the injustices and structural weaknesses of democracy. Indeed, by shaping technological advances after existing institutions, e-democracy may act to consolidate the ascendancy of existing institutions over their potential alternatives—leading some to observe, for instance, that 'the digital era seems to be merely another noteworthy change in environment which the bureaucracy aims to survive'

(Paulin 2015, p. 4). This strengthening may serve to extend the life of political institutions or processes that would otherwise be replaced or have a greater need to be replaced, in line with the continual evolution of societal values. In short, being more sensitive to how the unique aspects of the Internet can fundamentally improve governance would both encourage developing alternative perspectives for democracy, protect the organic evolution of the Internet, and promote democratic renewal.

Conclusion

The tragedy of e-democracy is that the field misses the opportunity to fulfil its own aims. This chapter has argued that while the Internet presents a myriad of opportunities for radically democratizing government, the core field expected to explore democratization through technology has largely sidestepped these opportunities. The role of technology in affecting power relations and control structures appears to be increasingly subordinated to the political *status quo*. E-democracy has focused on incremental developments to democracy, many of which consist in applying the efficiency and cost reduction enabled by the Internet to streamline or replicate, albeit in digital form, existing government processes. Hence, the participatory tools proposed by e-democracy strongly resemble those of the offline world, and the approach of modern e-democracy can be situated well before the popularization of the Web and the emergence of Web-oriented concepts. E-democracy's apparent outcomes of increased efficiency, greater inclusion of marginalized groups, and facilitated access to information have been incremental rather than structural—and consequently no 'Internet revolution' has occurred in government. By applying new technology to political structures that are centuries old, not only is e-democracy missing a large opportunity for impacting democracy through technology, but it also risks normalizing the Internet to the norms of the offline world, as well as emphasizing the current political system, with its structural vulnerabilities and the perceived injustices of its political outcomes. In conclusion, e-democracy must transcend its current ideology of incremental change in order to tap into a larger potential for fundamental change. New directions, including Internet Democracy, liquid democracy, peer-to-peer governance, block chain democracy, decentralized autonomous organizations, and wiki-based government are all examples of future directions that e-democracy might take in order to move digital-era government beyond the vestiges of the industrial era—that is 'beyond bureaucracy'.

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Beyond Bureaucracy

Alois Paulin

Abstract This chapter describes Beyond Bureaucracy as an emerging research field concerned with radical innovation for governance of juropolitical systems. The grand objective of Beyond Bureaucracy is to act as an incubator for the development of new forms of organisation and new technological artefacts, which would enable transformation of public governance. In this role, Beyond Bureaucracy does not prescribe a concrete outcome, but rather calls for creative ideas, radical visions, and rigorous discussions on how twenty-century technology can serve as a basis for further transformation and radical development. This chapter explains how Beyond Bureaucracy differs from related fields like e-Government or e-Democracy, provides an overview over the state of research in Beyond Bureaucracy, provides links to follow-up literature, and aims to provide a seed vision on the transformation potentials that could be researched-towards in scope of Beyond Bureaucracy.

Beyond Bureaucracy (BB), in a nutshell, is about the search for a novel paradigm for governance of juropolitical systems, where information and communication technologies (ICT) would *eliminate* the *need* for intermediary (human) agents in administering a society's common wealth (in terms of common resources, infrastructures, public offices, mandates, concessions, and the like). The guiding hypothesis of BB is the exploration of whether or not a core ICT system¹ that would cater to such grand objective *can* be designed and feasibly utilised for governance, as well as to discuss whether or not such ICT system could result in a boost of good governance, increase democratic legitimacy, incentivise economy, and ultimately bring forward a shift in civilisation of an unprecedented scale. In that sense, the BB researcher is advised to bear in mind that *Beyond Bureaucracy* deliberately invites it to leave the familiar Western ideal on how systems of governance are (or ought to

¹The use of *system* here does not prescribe/refer to a concrete instance of *one single* technical system.

A. Paulin (✉)
Vienna University of Technology, Vienna, Austria
e-mail: alois@apaulin.com

be) organized, that is, to forget for a while for sake of progress well-established paradigms of the state, such as the trias politica, the concept of suffrage, the role of law enforcement agencies, and so on. Instead, the BB researcher is invited to step out of the box and—as Tim O’Reilly once put it (O’Reilly 2010, p. 12), *strip governance down to its core, rediscover and reimagine it as if for the first time*.

The guiding line of BB research is thus to follow the grand vision of a central ICT system, through which governance of common wealth and other societal matters *can* be co-created, controlled, and steered,² all without the *need* for a dedicated middle layer (*the bureaucracy*). To accompany, fortify, and justify this grand objective, BB research includes the study of the sustainability of modern use of technology for purposes of governance, as well as ethical, jural, democratic, and economic implications of such use (cf. Paulin 2015a). Some of these topics have been previously discussed in a BB-focussed special issue of the *International Journal of Public Administration in the Digital Age* (Paulin and Anthopoulos 2017), others are discussed as part of the contributions to the present book.

To this end, the BB vision calls for trans-, inter-, and multi-disciplinary input [see (Stember 1991) for an insightful definition of these terms, or (Jensenius 2012) for a concise overview]. Trans-disciplinary research is about creating a “unity of intellectual frameworks beyond the disciplinary perspectives” (Jensenius 2012); in BB this becomes relevant when for example jurisprudence and informatics join forces to derive the principles of a blank slate jural system which goes beyond the constraints of existing laws [see (Paulin 2013) for such attempt]. Inter-disciplinary research then is about “integrating knowledge and methods from different disciplines, using a real synthesis of approaches” (Jensenius 2012); challenges in BB are inter-disciplinary for example in the context of aligning disciplinary semantics to serve as a common context against which the technical system can be designed and validated regarding its feasibility to address the grand objective. Multi-disciplinary research, finally, is about “people from different disciplines working together, each drawing on their disciplinary knowledge” (Jensenius 2012); in the context of BB, the global efforts that will contribute to the progress of this field and the dissemination of the *Beyond Bureaucracy* vision, will predominantly be efforts of a multi-disciplinary kind. In that sense, the present edited volume is a *multi-disciplinary* collection of research that is of relevance to the broader area of the BB research challenges.

The objective of this chapter is to provide guidance into the inter-/trans-disciplinary research challenges of the BB research field, as well as to point out the differences between BB research and related research endeavours that can be found under terms such as e-Governance, Digital Government, e-Democracy, or

²This vision is not to be mistaken though for similar-sounding endeavours of the past, as e.g. the Soviet *All State Automated System of Management* OGAS, a failed undertaking whose goal was to network all parts of the Soviet command economy in order to control and steer them centrally (Peters 2016); neither should it be mistaken for the objectives of Leibniz’ mysterious *Characteristica Universalis*, which partly aimed at mathematically capturing societal relations (cf. Gerhardt 1890).

Smart Governance; Section “[Beyond Well-Trodden Paths: How BB Differs](#)” shall outline how BB is different in this regard. Section “[The Core Vision](#)” then shall outline the core vision of BB, focussing on its main technological pillar, which runs under the keyword *Governance Informatization*. Section “[Economic Potentials of Radical Innovation](#)”, finally, shall conclude with some final remarks on the potential of *Beyond Bureaucracy* to transform society.

Beyond Well-Trodden Paths: How BB Differs

Researchers interested in utilising technology to transform any of the manifold relations between citizens and the state easily find a home in the e-Government (e-Gov for short) research domain. e-Gov is closely related, includes, or is partly even synonymous with terms such as e-Governance, Digital Government (the term used by US researchers), e-Democracy, Smart Governance, Open Government, and the like. The interested researcher thus finds a wide variety of research streams readily available to choose from, to which it can contribute, and thus make advances in its academic career. Established scholars in e-Gov then tend to study what is, in their view, a “complex phenomenon” (Scholl, n.d.); this includes drafting models that aim to assess the maturity of governments with regards to e-Gov implementation (Coursey and Norris 2008), hyping potential institutional transformation caused by the use of technology (Bekkers and Homburg 2007), or aiming to change how government agencies deliver their services to citizens (Anthopoulos et al. 2007; Reddick and Turner 2012).

The crux with these research streams however is, that they aim only to *incrementally* improve governance, taking the modern Western paradigm of the state as a confinement, which mandates a legislative system, a political system, a public administration, a judiciary system, law enforcement agencies, and so on.³ Behind this backdrop, e-Gov is understood as an interdisciplinary field that merges public administration (PA) with computer science/informatics (CS) (Bannister and Connolly 2015). In this relation however, CS is put in a Cinderella-like role, reduced to being a provider of tools and systems that *serve* the needs and objectives of *the bureaucracy*: the “e” in e-Gov thus stands for information systems that computerize administrative workflows, store digitized data, open electronic channels for interaction with citizens and their participation in policy making or elective processes, make documents and data available over the Web or other protocols of the Internet, provide the e-Identity, the e-Mail, online forums, and the like.

Thus, in e-Gov, CS is deprived of its potential for *scientific* contributions to the field, that is, the innovative and transformative potentials of technology are stifled

³The collective of these systems and their agents is *the bureaucracy* in the context of BB-research; for an overview over the differing semantics of the term *bureaucracy* as such, see (Albrow 1970). For similar uses of the term “bureaucracy” as in the context of BB, see (Downs 1967; Graeber 2015).

by the constraints of existing institutional, political, and legislative frameworks, which CS is tasked to serve. In a nutshell, *the bureaucracy* sets the agenda by which CS delivers tools and techniques in the scope of *professional* (rather than scientific) artefacts, whose effects are then observed by researchers and methods from PA, political science, and other areas of human and social sciences. What can be observed, are merely gradual improvements, where *the bureaucracy*, where so possible, changes its ways of operation from street-level to system-level interaction with citizens (Bovens and Zouridis 2002), while leaving the institutional framework essentially the same (cf. Paulin 2015b). At the end of the day, the role of CS in e-Gov is confined to incremental innovation, rather than research towards radical innovation.

Well-known is the quote, popularly attributed to Henry Ford, that, had he asked his customers what they want, they would have told him they would like a faster horse [see (O’Toole 2011) for traces of this fable beyond Ford]. Likewise, asking *the bureaucracy* what it desires and providing accordingly, is a *professional* (as opposed to scientific!) challenge, that can at most result in incremental change. At this point, BB aims to step out of the box posed by contemporary constellations of governance institutions and legal frameworks, and promotes *radical* innovation (“incremental innovations improve, whilst radical innovations transform” (Binks 2014)—see *ibid.* for a deeper discussion on incremental vs. radical innovation). It aims to provide a transdisciplinary platform for a radical rethinking of how human society can govern itself by realising the full potentials of the technologies invented during the twentieth century.

This then, is the main difference between BB and e-Gov: while e-Gov has a *professional* attitude to designing technical artefacts that serve the bureaucracy (its scientific contributions focus on observing the effects of these technical artefacts, rather than designing new technology), BB takes a scientific stance to designing new base technologies to enable *radically* new models of societal governance.

The Core Vision

The twentieth century brought *electronics* as a base from which further radical innovations stemmed: digital electronic computing technology enabled general-purpose calculation of unprecedented scale, and the evolution of programmable computers; informatics advanced computing beyond the calculation of numbers into a dimension where structured data can be stored and processed by software; digital electronics, combined with informatics, enabled telecommunications to go beyond the limited capabilities of the telegraph, and to reach a state of ubiquitous communication where the Internet of Things becomes a conceptually feasible incremental innovation. With these radical innovations, the twentieth century saw radical innovation in trade, logistics and transportation, manufacturing, entertainment, communication, and other domains of modern civilisation. The twentieth century left little room for radical innovations in above-mentioned

domains—even though systems and services continue to improve, such improvement is not radical any more, but merely incremental.

One of the remaining twenty-first century's opportunities for radical innovation lies in the domain of societal governance, where on top of twentieth century technology new ideas can be advanced and realised, with promising potentials to boost economic growth. One such vision, which has been gaining momentum over the recent years, is *Liquid Democracy*, which radically changes the way communal/collaborative decisions in society can be made. In Liquid Democracy, collaborative decision-making power held by an individual can be delegated to another individual, which latter can delegate further, and so on (Paulin 2014). This way, a network of trust is formed, in which collaborative decisions (such as e.g. on budgetary issues, public policies, laws, or public mandates) can be made in a more inclusive and more democratic way (Blum and Zuber 2016; Nijeboer 2013). Liquid Democracy is spearheaded by technical innovation (Hainisch and Paulin 2016; Jabbusch 2011; Paulin 2014), and accompanied by theoretical considerations from philosophy and political science (Blum and Zuber 2016; Nijeboer 2013).

Another radical vision is *Governance Informatization* (Paulin 2017), which is about establishing a system of levers in cyberspace, through which the agents and resources of the common wealth could be steered. An essential part of that challenge is rooted in technology, where the challenge is to design the elements of an information system that would be capable to serve *any* potential type of political or legal system and absorb any changes of such without the need for the manual reconfiguration of such system during runtime. One can imagine such system as a global, virtual ledger-like file (database), which would contain information that would define the scope of action available to agents holding power to influence the course and faith of the common wealth, in a given context. Consulting this file would give one knowledge about the eligibilities a specific individual has in a given context, such as for example, if one has a valid residence or driving permission, is the legitimate holder of a public office, the legitimate representative of an organisation, the legitimate controller or user of a common resource, and so on. By changing the information in this system, the eligibilities of individuals and organisations would be tuned on a per-person level, or on the system level, respectively, by which the characteristics of the entire system of governance agents would be transformed (Paulin 2014).

Both Liquid Democracy and Governance Informatization (GI) have in common that they aim for eliminating middlemen which would mediate in (and thus potentially meddle with) the transfer of information between parties. There is no *need* any more for casting ballots, no *need* for counting votes, and no *need* for appealing against allegedly unlawful procedures in Liquid Democracy. Similar, there is no dependency on administrative personnel, which would mediate in the creation of legal rights, the transfer of property, or the provision of credentials in GI. Joining informed governance with liquid democratic decision making is the foundation for the vision of Sustainable Non-Bureaucratic Government (Paulin 2014), which is a pioneering model that aims to provide a clear technological basis for radical innovation in governance.

Conceptually, the idea is very simple: the virtual ledger-like file is the central data base in which all publicly relevant jural relations are stored, and from which all publicly relevant eligibilities are derived. The principle of a global file containing all relevant information on jural relations of a certain kind is well-known to Western thought in form of e.g. land registries, which are supposed to contain all data needed for governing property relations. The concept of a central file is a core principle in software systems: seen from a certain level, all one sees on the computer screen, all the words, the colours and shapes, the moving pictures, the game characters, and so on, are results of interpretations of a very long file of digital words, which lives in the computer's memory during system operation. And just like one's interaction with the world behind the computer screen is—from a specific technical perspective, a constant read/write interaction with the computer's memory file, so is it likewise possible to engineer a global (distributed) file which would store all necessary relations relevant to real-world systems of governance. Everybody would then have access to such central database and by interacting with it one would shape the fortune of society, its own relations with others, or—having acquired the appropriate eligibilities, influence the position and role of others in society, respectively. The technical challenges in assuring non-mediated governance for the interaction with such system are manifold, and have been partly explored throughout (Paulin 2012, 2013, 2014), where a proof-of-concept of such system has been demonstrated. What is more important though than the technical implications of infrastructure, are the societal and economic opportunities and challenges that such system could bring.

Imagine Following:

You feel unsatisfied with the level of taxes you are paying to your political community, and you're unhappy that you have no control over the money that is thus taken away from you. Besides, you have so many useful ideas for investments in public infrastructure in your neighbourhood, but despite your many mails to the authorities in charge, their priorities as usual differ from yours. You've had enough of this bureaucratic culture—long faded is the initial idea of modern democratic institutions, best explained by the old slogan “*no taxation without representation*”.⁴ You take the initiative and start transforming society.

You start by creating code, which would change the way taxes are distributed: instead of the parliament having full control over taxes, your code provisions that each individual can use up to half of its tax duty for any common cause they wish. To enact this code—that is, to make it part of the code that regulates how the central database behaves, you need to enact the code according to the valid regulations.

⁴Mind you: even though the political idea of this Eighteenth century slogan was representation through parliaments, one must bear in mind that institutional representation was the peak of democratic engagement possible at that time. New possibilities brought by the twentieth century electronic technologies invite to think of better and more inclusive ways, which might well render parliamentary institutions obsolete. Again, it is a matter of radical innovation [e.g. liquid democratic *decision-making* (Paulin 2014)] versus incremental innovation [e.g. participatory budgeting (Boukhris et al. 2015), or liquid-democratic *policy shaping* (Blum and Zuber 2016)].

Utilising the power of Liquid Democracy, you start convincing your friends to give you their trust and spread the word about your cause. You have a long battle ahead—the entrenched institutions and networks which directly or indirectly live from tax money fight every way possible to keep their privileges. But times have changed: you don't fight for a vague policy (which, should you win, would run danger to be watered down by lobbyists and corrupted by political compromises), but for code, which, once you've won, will be directly executed the way you designed it. Once you've won your battle, you've transformed society. The old institutions which before secured their funding by dwelling in shady lobbies, now have to convince individuals year after year of their usefulness, which gives the public full democratic control over which institutions survive and which die out. The result is greater transparency, higher ethics, and increased quality of public service offered by the institutions which managed to gain trust and secure public funding from the public directly.

The level of democratic control over institutions that make up the state, as described above, is something that can only be achieved using twentieth century electronic technologies. Never ever before in the entire history of human civilisation could such endeavour even remotely be considered. To further democratise society, we finally *can* think how to bring democratic control back into matters of taxation, as well as other matters of common wealth. To progress civilisation in this direction, is a prime objective of twenty-first century science and technology.

Economic Potentials of Radical Innovation

It goes without saying that implementation of radical innovation requires a suiting business model able to justify investments in pursuing development and change. Even more so is a justification required if radical change is to be introduced in such delicate and dynamic system as societal governance, which has undergone a long and complex evolution over centuries, being shaped by wars and revolutions, technical discoveries, political innovations, religion, and so on. But then again, radical innovation in the domain of governance systems has ever since been part of societal change, a driver of progress and prosperity: The Prussian bureaucracy, the metric system (Napoleon), the post office, the social state, feudalism (and its abolition), medieval cities, parliaments, etc., were all based on radical innovations (either technological or organisational) of their time, which shaped civilization as we know it today.

e-Gov uses technology in the context of governance in an incremental way—there is either more of what there was before (more participation, more openness), or it is made available over new channels of interaction (governmental web pages, e-mail, exchange channels between governmental agencies). While this entrenches the power of agencies and reduces democratic control (Paulin 2016), it does not change the relation between citizens and the state. “Add successively as many mail coaches as you please,” wrote Joseph Schumpeter in his *The Theory of Economic*

Development (Binks 2014, p. 92), “you will never get a railway thereby”. “Breeding home pigeons that could cover a given space with ever-increasing rapidity did not give us the laws of telegraphy, nor did breeding faster horses bring us the steam locomotive” wrote Edward Menge (Binks 2014, p. 93) to likewise emphasize the importance of radical innovation. The same principle applies in governance: we can increase the density of referenda, increase the size of parliament, make all documents public, and incentivise each citizen to provide their opinion in public debates, it still won’t change the century-old paradigm where a privileged bureaucratic class⁵ controls the course of society.

Governance Informatization (GI) has the potential to radically change this entrenched paradigm, democratize governance and in the same move boost economy by creating new specialised job types along new value chains GI would introduce. In this regard, we can draw parallels to the economic drive that evolved around the Internet, and later the Web. As a matter of fact, the basic principle is the same, and GI is heavily based on the principles and paradigms of the Web: in case of the Internet or the Web, one queries remote servers to obtain (or store) data of various kind, whereby the data exchange happens in form of sequences of characters, which on each side are interpreted as information and accordingly processed/visualised/consumed; communication within GI would, basically, be about exactly the same—storing and retrieving data on remote servers. The difference between GI and the Web in this regard is twofold: on the one hand, GI has more stringent requirements regarding its communication protocols (cf. Paulin 2013), on the other, it requires the creation of a novel *fiat* system in which the thus stored and retrieved data make sense (cf. Paulin 2014). To facilitate the interaction of human users with the system, an ecosystem of user-friendly applications, technical tools that would facilitate in the design of *code*, and so on, would have to be designed, maintained, and commercialised. Schools could teach how to interact with the system (and thus, how to actively participate in society), and more complex operations, such as how to compose complex code, could be studied at universities.

Radical innovation has plenty of success stories throughout the modern history of (Western) civilisation: the eighteenth century industrial revolution disrupted global manufacturing which before that for millennia stayed the same; it led to a radical transformation in the culture of work and production in the West (Zuboff 1988), which yet in the twentieth century was a role model culture for the rest of the world to catch up with (cf. (Dikötter 2010) for the adverse effects of the struggles in Mao’s China). The ninetieth century brought to Europe radical societal innovation in form of urbanisation, dismantling of the feudal system, and a rise of social ideologies (which posed a foundation for the European twentieth century social states, and a breeding ground for the modern womb-to-tomb bureaucracies). The twenty-first century, finally, “catapulted humanity from the paraffin lamp to outer

⁵This includes, but is not limited to the beneficiaries of the system of public administration, the political system, the judicial system, the public healthcare system, system of public education, military, etc.

space”,⁶ unleashing an unprecedented scale of economic activities that evolved around radical innovations in the domains of logistics, industrial production, farming, navigation, communication, information processing, medicine, etc. It goes without saying that each epicentre of the respective disruptive innovation became an awe-inspiring role model for the world to follow suit: Great Britain as the cradle of the industrial revolution, France for the civil liberties, Germany for the heavy industry, and California for the high-tech & “dot-com” economy, which made this US state surpass nations such as Italy or Russia in economic might (ccscc.com 2015).

Outlook and Transformative Potentials

Governance Informatization (GI), as a pillar of Beyond Bureaucracy, enables citizens to take up initiative and *design & program* their own contribution to governance, and coin and govern new types of morph-able, cyberspace-based communities beyond the scope of traditional bureaucratic paradigms and the *imagined communities* (Anderson 2006) of nation states. The ability to step out of the box, work hard and start new, would give GI the character of a new economy, that would attract investments, build-up hopes and hypes, and would open new avenues towards greater societal progress and new economic opportunities in science, technology, and business.

Technological development would maintain the perpetuation of the system in a similar manner as twenty century technology is perpetuating its progress dynamics through its three technological ecosystems (Paulin 2016)—the primary ecosystem, which evolves around the base technology (e.g. the Otto motor) that enabled the radical innovation (e.g. the invention of the automobile) in the first place (or *is* the radical innovation itself), the secondary ecosystem, which uses technology from the primary ecosystem to create systems for users/consumers (e.g. cars, busses), and the tertiary ecosystem, which evolves out of the possibility provided by the secondary ecosystem to integrate third parties through interfaces (e.g. manufacturers of car tires, child seats, spare parts, etc.).

The drive that would trigger the evolution of the technological ecosystems could kick-start a paradigm-shifting transformation of society, which could realise the old Marxist objective of a post-state society. Such transformation is a justified expectation, since the ability of GI to enable self-governed communities beyond the confinements of national territories and entrenched societal systems addresses the native culture of cyberspace, where new modes of production [e.g. peer production (Raymond 1999; Schmidt 2014)], new business models (e.g. Amazon, Booking.com, WeChat), and new modes of communication (e.g. the Web, e-mail,

⁶I owe this quote to my father, Prof. A. Paulin, who frequently used it to emphasize the paradigm-changing impact twentieth century technologies had on human civilisation.

instant messaging) threaten entrenched social institutions erected from opportunities of past generations.⁷

Behind this backdrop, *Beyond Bureaucracy* means first of all one thing: it provides a technology-driven alternative to think of the next steps in the evolution of human civilisation. In times where the outlook for the future of society is characterised as “post-democracy”, “post-politics”, or as “politics of simulation” (Blühdorn 2007, 2014), societal transformation through radical (technological) innovation is an option worth to explore. While doing so however, one should bear in mind that it might be beneficial to leave entrenched worldviews on the role of traditional institutions in governance deliberately out of consideration, and thus to allow for new opportunities to emerge that could transform society for the better.

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⁷The reactions to which are reflected in diverse data privacy legislation, the institution of information officers, data retention laws, national firewalls, etc.

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In Defence of Bureaucracy: Governance and Public Values in a Digital Age

Frank Bannister

Abstract Almost from the moment the term was first coined, bureaucracy has been the subject of strong criticism and, if anything, such criticism has become more trenchant in recent decades. Numerous scholars, practitioners and politicians have talked about or envisaged systems of government/public administration which move beyond bureaucracy. These range from the tried to the theoretical. Others have forecast the end of bureaucracy—increasingly invoking information technology as a tool which can be used to achieve this end. In this chapter, a counter argument will be presented, i.e. that when it comes to protecting and vindicating public values in a complex modern state, bureaucracy can play a vital, and hard to displace, role.

Introduction: Some Difficult Words

This title of this volume contains three problematic words: bureaucracy, governance and informatisation (let us not worry about sustainable). All three are routinely used by people who have at best a fuzzy understanding of what they mean. Ask many scholars of e-government (particularly those whose background is in information systems rather than, say, public administration) what they mean by “bureaucracy” and the odds are that you will get a vague or even incoherent reply possibly accompanied by a few prejudicial remarks about red tape, inefficiency and inertia. Ask them what they mean by governance and you are likely to receive a variety of different definitions; some will even struggle to differentiate it from government or management. And unless they were active in the field prior to about 2003, most will have to guess at what is meant by informatisation.

This chapter will focus on two of these words, namely bureaucracy and governance, and will consider both in the context of third concept, public values. In so doing, it will seek to define what is meant by all three terms and to show how the first of them, bureaucracy, can, as a component of the second, governance, be

F. Bannister (✉)
Trinity College, Dublin, Ireland
e-mail: FBNNISTR@tcd.ie

important to the protection and vindication of the third: public values. Informatisation is another ill-defined term (in the sense that it is used in all sorts of different ways and contexts), so to keep life simple it will be interpreted in this chapter as a proxy for what is commonly called “the digital age”. The term “digital age” will be used as portmanteau shorthand for the impact of ICT on government, public administration and more generally on the public sphere. This slightly different from the meaning of informatisation that was proposed by Nora and Minc (1980) and was widely used to describe research into ICT in government and public administration during the 1980s and 1990s in the era before the term “e-government” entered widespread use, but it will serve for this chapter (where it will largely play only a background role). Informatisation is still discussed today, though it is much less commonly encountered than it was in the 1980s and 1990s. Further examination of the concept of informatisation is, however, beyond the scope of this chapter.

The remainder of this chapter is organised as follows: first, the nature of bureaucracy will be explored. This will be followed by a brief discussion of what is meant by public values and a longer discussion of the problem of clashes between public values. Next, the concept of governance will be examined, again briefly, and this will lead to a concluding discussion of the potential role of bureaucracy in public governance and specifically in protecting public values in a digital age.

Bureaucracy

Bureaucracy gets a bad press. The words “bureaucracy”, “bureaucratic” and “bureaucrat” have overtones of Byzantine administrative procedures, opacity, inefficiency and impersonality not to mention numerous other administrative pathologies. To describe an organisation as bureaucratic is to imply, *inter alia*, that it is slow to respond, cumbersome, inflexible and rule-bound. In the popular imagination, bureaucracy is generally considered to be a bad thing, at best a necessary evil, and even if not actually malign, a drag anchor on getting things done. As an organisational form, it has attracted its share of academic and theoretical criticism (see, for example, Wilson 1967 or Osborne 1993—other criticisms are discussed below). What is not so obvious is whether, when it comes to governance and specifically governance in a digital age, there are better options or indeed any sustainable better alternatives for management and governance of government agencies once one moves much beyond a modest or local scale or level of complexity. It is easy to proclaim that we need to move beyond bureaucracy; it is less obvious what “beyond” means or that wherever it is that life will necessarily be better when we get there. Other authors in this book address that question. In this chapter, we will be concerned with just one aspect of bureaucracy, namely its potential role in maintaining a level-playing field when it comes to public values.

Bureaucracy as a concept, if not as a word, goes back a long way. Professional (in the sense of being paid a salary) civil servants were known in China well before

1000 BCE. From the Tang dynastic (i.e. from about 608 CE), public administration appointments were based a form of meritocracy, the so-called nine-rank system, a system which today we would call a bureaucracy. It was (by all accounts) for long periods a fairly efficient system. The word “bureaucracy” itself seems to have been used for the first time (in its French form) in a letter written on 1 July 1764 by the Baron de Grimm. Its literal meaning is “rule by office”. Although the word subsequently came into circulation, its widespread use in discussions of public administration dates from the early nineteenth century and can be traced through the work of such luminaries as the English philosopher John Stuart Mill who savagely attacked the idea in his essay *On Liberty* (1859). Some in the nineteenth century saw bureaucracy as a form of government to be contrasted with monarchy, aristocracy and democracy (Alberow 1970). Writers such as Mosca (1939—originally published in 1895), who divided all government into two types, feudal and bureaucratic, and Michels (1962—originally published in 1911),¹ who argued that permanent salaried officials were necessary to all large organisations, contributed to the development of an early literature on the subject.

The modern conception of and debate about bureaucracy dates from the work of the German sociologist Max Weber who, in a number of commentaries, but notably in an essay written in the 1920s (Weber 1946) laid out the basic architecture of a bureaucratic system. Almost from the beginning, Weber’s articulation of bureaucracy (outlined below) was the subject of criticism (some of which is discussed below). This criticism continues to this day. Given the level of critique not to say abuse to which it has been subjected, it is easy to forget that Weber perceived bureaucracy as an ideal form and as a rational form of government. As described by Weber, bureaucracy is a form of governance designed to deliver a fair, professional and impartial public administration whose structures insulate it from the twin evils of corruption and abuse of executive power. In his essay, Weber sets out the main features of bureaucracy as follows:

- A system of fixed jurisdictional areas ordered by rules (i.e. laws or administrative regulations).
- Within this, a system of official duties is defined within a hierarchy with clearly defined and delimited authority at different levels.
- Within this hierarchy, a system of supervision exists within which decisions are referred upwards where appropriate and/or necessary. Levels in the hierarchy are graded with supervision of lower levels by higher levels, but higher levels do not have any automatic right to overrule competently made decisions at lower levels.
- A system of written records and files.
- Strict separation of public office from private interests.
- Officials who are full time and whose discharge of their official responsibility is primary and takes precedence over any other work-related activities.
- Officials who are qualified to do the job. Officials are trained to do specific jobs and are promoted on merit.

¹Both Mosca and Michels’ books can be downloaded in English translation from the Internet.

- Office holding is a vocation and tenure is for life. Provided an official performs competently, his or her job is permanent and not at the whim or discretion of others (and in particular not at the discretion of politicians).
- Salaries which are on fixed scales and pensionable.
- A system of rules and regulations, both of which are “more or less” stable, and which can be learned and mastered by officials.
- Officials who are mostly appointed or promoted (rather than say being elected or contracted).

Weber (1946, p. 214) is quite explicit about the rationale for the existence of bureaucracy:

the decisive reason for the advance of bureaucratic organisation has always been its purely technical superiority over any other form of organization.

He went on to argue that bureaucracy provides the basis for the levelling of social differences (mandarins in imperial China were selected on merit—not social class). The expression “*purely technical superiority*” is worth noting. Weber went further arguing that bureaucratic administration means domination through knowledge. He did not (despite claims to the contrary by many critics) argue that bureaucracy was necessarily an *efficient* form of government. Weber himself defended the rationality of bureaucracy as being a technically superior method of administration, but he did not claim that it was more productive than possible alternatives and allowed that other, more corrupt, systems might actually get more done. As far as Weber was concerned, rationality and efficiency were separate qualities.

Looking at the characteristics on the above list, it is not self-evident that any of them are necessarily bad, though it is easy to see how many could, if pushed too far, quickly become undesirable. As noted, criticism of Weber’s concept of bureaucracy has been widespread and many of these commentaries continue to have contemporary resonance. For example, Parsons pointed out the potential for conflict between expertise and seniority; in the case of a clash, whose instructions does a junior official obey? Many critics of bureaucracy argue that the problem lies not in the principles, but in the practice; over time bureaucracies tend to ossify, become arrogant and constantly seek to increase their power and control.

Others, rather than adopting Weber’s abstract definitions, have tried using empirical research to identify the common characteristics of public administration in different contexts and countries. For example, Friedrich (1952) identified six such characteristics:

1. Centralisation of control and supervision;
2. Differentiation of functions;
3. Qualification for office;
4. Objectivity;
5. Precision and continuity; and
6. Secrecy.

To twenty-first-century sensibilities, this is a less appealing list than Weber's. It is hard to argue that qualification for office and objectivity are not good ideas, but while secrecy and centralisation might have suited the zeitgeist of the 1950s, to modern ears they have a paternalist, end-of-empire feel.

In the ninety or so years since Weber first presented his model of bureaucracy, scholars, theorists and practitioners have struggled to define what precisely it is. There are many perceptions, many of them incompatible. For example, bureaucracy has been viewed by different commentators as:

- Rational organisation
- Inefficient organisation
- Rule by officials
- Administration by officials
- Public administration
- The organisation itself and even as
- Modern society.

Alberow (1970). Perhaps, after all, modern scholars of e-government can be forgiven for being unclear about what bureaucracy actually is.

Finally, it must not be forgotten that bureaucracy is not just a public-sector phenomenon. Bureaucracies can be found in many large commercial organisations (in fact some of the most rigid bureaucracies are to be found in large corporations). In his famous discussion of organisational types, Mintzberg (1979) recognises the role and importance of what he calls machine and professional bureaucracies as an efficient ways of running certain types of business. Corporate bureaucracies can be just as baffling and opaque as any government ministry. We will return to Mintzberg later.

Public Values

A great deal has been written in both the academic and practitioner literature on the subject of public values (e.g. Nolan 1995; Van Wart 1998; Sherman 1998; Kernaghan 2003). Jørgensen and Bozeman (2007, p. 355), in what is possibly the most sweeping overview of the field published to date, go so far as to claim that "*There is no more important topic in public administration and policy*" and identify (at least) 72 such values. Many of these (enthusiasm; voice of the future) are ambivalent or distinctly odd. This is in part because the authors accept a wide variety of conceptualisations of public values. Other lists use narrower definitions and as a result are both shorter and more coherent [for example Kernaghan (2003)]. While there are many such lists, most of them have a common core. Dunsire (1995) calls these the "*taken-for-granted*s" of administrative life; public service values and in particular those of civil servants.

There are also many categorisations or taxonomies of public values. Beck Jørgensen and Bozeman classify public values into seven “constellations”. Bonina and Cordella (2009) divide values into those supporting public sector reform and those supporting good governance. Kernigan proposes a four-way classification into ethical, democratic, professional and people-related. Other classifications include a division between values which relate to the behaviour of individuals and those which relate to organisations and a division between values that are related to behaviour (e.g. fairness, objectivity) and those that are not (e.g. accountability, robustness).

It is not necessary to discuss this literature in detail; readers who want to know more can consult any of the references above or any of the many other publications on this topic. What is of central to the argument in this chapter is that in certain and not uncommon circumstances public values can conflict and that such conflicts pose challenges for governance. A conflict can be between two specific values. For example, one stream of criticism of New Public Management (NPM) was concerned with the conflict between the wider public good and the interests of the administrative elite (Dunleavy 1985; Pollitt 1990). More generally, groups of values can conflict in complex ways. This is to be expected. Much government is about balancing conflicts of interest between stakeholders and making trade-offs which may favour one stakeholder or stakeholder group over another. Because different stakeholders typically place emphasis on different public values, this often leads to a clash of values. Such clashes range from the individual level, e.g. freedom of information (transparency) versus data protection (privacy), to national policy level, e.g. nuclear energy (security of supply) versus renewable energy (sustainability).

Both operational and policy decisions can entail values trade-offs between stakeholder groups. A number of classifications of public values were mentioned above. For the purpose of this chapter, two quite similar classifications will be used to illustrate this phenomenon: Hood’s (1991) concept of *sigma*, *theta* and *lambda* values and Bannister and Connolly’s (2014) concept of *duty-oriented*, *service-oriented* and *socially oriented* values. These are chosen because both are presented in the context of assessing the impact of ICT on values (indirectly in the case of Hood; directly in the case of Bannister and Connolly). Hood refers to what he calls administrative values while Bannister and Connolly use the term public values. These are not the same thing; however, the difference between them is not important for the purposes of this discussion. Hood’s three-way categorisation is as follows:

- *Sigma* values which are about frugality (e.g. efficiency, effectiveness);
- *Theta* values which are about ethics (honesty, integrity, fairness); and
- *Lambda* which values are about security (resilience, safety).

Hood argues that it is hard for any administrative system (and specifically for New Public Management about which he is writing) to support all three of these categories of values simultaneously, though it may be able to sustain any two of

them. He suggests that it is the *lambda* values that are the most affected by ICT. Bannister and Connolly's three-way division is roughly analogous to Hood's, but is wider in scope. They define public values as modes of behaviour (individual or corporate) that the public considers desirable. Using this definition, they categorise values as:

- *Duty-orientated* values which are an extension of Hood's *sigma* values to include the duty of public servants to the government and the state (e.g. compliance with the law; facilitating the democratic will);
- *Service-orientated* values which extend Hood's concept of *lambda* values to the requirement to provide a high level of service to citizens as well as the resilience such services require (e.g. respect for the individual citizen; transparency); and
- *Socially orientated* values which extend Hood's *theta* values to broader social goals (e.g. inclusiveness, fairness).

In general where value clashes occur it tends to be between the values from different groups rather than between values within a given group. Taking Bannister and Connolly's categorisation, it is more likely that Responsiveness (service-orientated) and Due Process (socially orientated) values will clash than will, say, Justice and Fairness (both socially orientated values).

To illustrate this point, consider a specific issue in contemporary e-government policy: digital by default. This is currently the implicit policy of many governments and the explicit policy of some [see, for example, the UK government (Cabinet Office 2011; HM Government 2011)]. Digital delivery of government services has several virtues not the least of which is that it is (if done right which is not always the case) highly cost-effective in part because it transfers some or even most of the effort involved to the citizen in the form of self-service (a good example being self-assessment in online taxation systems).

However, there are citizens for whom digital access is a problem. This includes people with certain forms of disability, a lack of broadband access, low digital literacy and so on. For citizens in these groups, digital services may be hard to use or may not be usable at all. The problem is that other forms of access such as telephone, postal services and public offices are all more expensive; in some cases, several orders of magnitude more expensive. Furthermore, multiple channels need to be co-ordinated further adding to the cost of providing such options (Klievink and Janssen 2010). The response of some technocrats to the latter is that people just have to learn to use the Web and find a computer somewhere. This "*let them eat cake*" attitude is more than just a theoretical concern. A few years ago, I attended a conference where the CIO of a European country told a large audience comprised mostly of public servants that people would just have to learn how to use the Internet if they wanted to use certain government services in his country. The audience audibly gasped, but the CIO in question did not seem to notice arguing that this was self-evidently the way of the future. Writing of the UK (which is not where the CIO referred to in the preceding sentence came from), Kearns (2004, p. 21) summarised this cynically, but probably not entirely inaccurately, when he

wrote that fairness of access is “*not the guiding principle of e-government policy in the UK*”. When it comes to digital by default, there is a clear trade-off therefore between efficiency/economy and equity/fairness. The question is how is policy with regard to multichannel access decided? This is where a properly designed bureaucratic system may be of value.

Efficiency versus equality is far from the only potential conflict of public or administrative values. Another example is openness/transparency and several other values including privacy, security and honesty. The potential for conflict between transparency and security or between transparency and privacy is fairly evident; that between transparency and honesty is less so. Consider, however, a situation where all discussions by public servants and all internal documents which are not directly related to the security of the state are made available to the public shortly after the time they are written. A civil servant, knowing that her every word might appear in the press the following day (or on Twitter that evening) and conscious of words being taken out of context (a problem greatly exacerbated by modern technology) may well choose to avoid putting in writing potentially contentious, unfashionable or, in modern parlance, politically incorrect views thus being intellectually dishonest.² This, too, is not just a theoretical possibility; it is already the case with Freedom of Information acts which are routinely used by the popular press for what Grimmelikhuijsen (2012) calls “Gotcha”³ stories and headlines. The extent to which this is a real (or new) problem is hard to assess. Civil servants have always written for the file. But in an age of transparency, there is a risk that they either do not write at all or that they engage in a form of steganography.⁴ There is a need for more empirical research in this area, but it nonetheless remains a plausible concern. In summary, while calls for more transparency are heard all the time and while transparency has significant benefits (Bertot et al. 2010; Dawes and Helbig 2010), it is not without risks (Bannister and Connolly 2011; Krastev 2013). Other sources of potential conflict are between effectiveness and consultation or between facilitating the democratic will and impartiality. These are just a few examples. It is not difficult to think of others.

²The cost of intellectual honesty can be high. At the time of writing, the government of Greece has just launched a criminal prosecution against its own chief statistician on the grounds that he “exaggerated” the problems of Greek government finances. All he seems to have done was to apply the European Union’s rules correctly—something which showed the state of the country’s finances to be much worse than the government claimed.

³“Gotcha” is shorthand for “got you” or “caught you”, i.e. popular press headlines when they catch civil servants or politicians allegedly misbehaving.

⁴Steganography is the art of hiding in plain sight which is a form of camouflage or encryption. In this context, governments can bury the public in information in a way that makes it hard for citizens to see what is actually important.

In a democratic system, political trade-offs are, in theory, for elected representatives to make or, in a direct democracy for the people to decide. Politicians are open to lobbying (not to mention bribery) and citizens are open to manipulation and simplified (and downright false) information (consider the 2016 Brexit campaign or the 2016 US election), but even without such factors both of these mechanisms can produce unbalanced situations where minorities are disadvantaged or individuals are discriminated against sometimes deliberately, sometimes inadvertently. Given that public (or administrative) values are forms of behaviour that the citizens expect of their public servants an obvious question is how is the appropriate balance between conflicting values determined? Put another way, what governance structures will provide the best means of protecting potentially vulnerable values such as those that are important to minorities or outgroups from being overridden or even ignored? This is a classic problem with any form of incentivisation and why, in the Weberian model, officials are on predetermined salary scales operating within a system of rules and are forbidden from having other forms of employment which might distort their judgement. There is a need for a counterweight, not only to speak truth to power, but one which has no personal stake in the decision and which can choose or recommend to decision makers which value(s) should take precedence and to what extent. A frequent criticism of NPM was that, by empowering individuals, it risked arbitrariness and where that individual was influenced by incentives created the possibility of perverse outcomes [for an amusing account of the problems of perverse incentives, see Levitt and Dubner (2010)]. It is all very well for, say, Osborne and Gaebler (1993) to talk about government which is mission-driven, decentralised and entrepreneurial, but entrepreneurs are often not that particular about who gets trampled in the rush; this not a form of behaviour we might welcome in our civil servants. Bureaucracy, if properly designed, is one possible way of providing a layer of protection against such risks. Before addressing that topic, it is necessary to consider briefly the question of governance.

Governance

Governance is only a slightly less problematic concept than bureaucracy. There are numerous definitions of governance many of which are incompatible. Rhodes (1997, p. 15) goes so far as to suggest that: “[*governance*] has too many meanings to be useful”, and Peterson (2004) describes the terminology in the governance literature as a jungle, concluding that there is no universally accepted definition of governance. A further problem in the e-government literature is that many scholars confuse e-governance with e-government (particularly in India where the terms seem to be synonymous). Anybody who has reviewed a paper with “e-governance” somewhere in the title or keywords will be familiar with this problem. There is a large number of questionable definitions and conceptualisations of e-governance to be found in the literature (Bannister and Connolly 2012).

Whatever about e-governance, there is some commonality to be found when it comes to public governance. Surveying the literature, Bovaird and Löffler (2002) note that there is a general agreement that governance involves many more stakeholders than just government, that it deals both with the rules, formal and informal, that govern society and with the processes of negotiation whereby these rules are interpreted and modified and that there are different forms of governance which range from markets to hierarchies. Different mechanisms are appropriate in different circumstances. A definition from Bevir (2012, p. 2) captures this quite well:

...all of processes of governing, whether undertaken by a government, market or network, whether over a family, tribe, formal or informal organization or territory and whether through the laws, norms, power or language.

Two core aspects of governance relate to behaviour and decision making. One tractable view of governance is that it is about structures, norms and procedures designed to encourage (or to achieve) desired forms of *behaviour*. Benz and Frey (2007) discuss public governance as being about how to “*control and discipline the behaviour of executives in the public sphere*”. Peppard (2005, p. 11), writing about IT governance, puts it thus:

All this requires ensuring a consistent and desirable decision-making behavior among employees at all levels in an organization regarding IT. This is the essence of governance (Jensen and Meckling 1976)

(Emphasis added).

Decision making encompasses who makes decisions, how decisions are made, who needs to be consulted, who needs to be informed, what information/data is fed into the process, how and from such data are sourced, what decision-making criteria are used, who sets those criteria and so on. In a sense, all governance comes down to decision making whether it is at policy level, at street level or anywhere in between. It can be argued that all governance comes down the problem of ensuring good decision making (and ideally good decisions, though that is a separate question). Every time one hears the expression “*a failure of governance*”, whether this relates to a breach of the law, a policy failure or an ethical failure, whether it is fraud, malpractice or malfeasance, it is almost always a result of a shortcoming or breakdown in a decision-making process.

If, therefore, public values are the desired forms of behaviour and governance is about ensuring desired forms of behaviour, it follows that proper governance is critical to the protection, vindication and correct balancing of public values. Furthermore, if governance is about decision making, the question is what form(s) of governance will help to ensure that, in public decision making, an appropriate trade-off between conflicting public values is made? Of course, there is much more to governance than this, but the focus here is on this one core aspect of what public governance is about. How do we ensure that decision making at all levels in public administration is fair, balanced and evidence-based?

Defending Public Values: The Case for Bureaucracy

While, as noted in the opening paragraphs, it is not obvious what exactly is meant by moving “beyond” bureaucracy, it clearly implies replacing bureaucracy (however defined) with something better. This is far from a new idea; it goes back to John Stuart Mill and beyond. The problems with, and shortcomings of, bureaucracy have led many theorists (Lenin for one) to believe that it would eventually be consigned to the junk heap of history or that it can and should be replaced by a new and better form of public administration.

But replace bureaucracy with what exactly? Leaving aside monarchy and aristocracy (which presumably most would consider retrograde steps), a number of possibilities have been floated over the years. Osborne and Plastrick (1997) theorise about “banishing bureaucracy” and propose five strategies (clarifying organisational purposes, creating consequences for organisational performance, becoming customer-driven, empowering workers and communities, and developing an “entrepreneurial culture”) for replacing it. This is largely a rehash and extension of Osborne’s earlier 1993 book (with Gaebler) on reinventing government and places the same faith in entrepreneurs and markets to solve complex sociopolitical problems. Heckscher (1994) differentiates between badly managed bureaucracy (which he describes as a red herring) and inherent problems in the bureaucratic model. There is, he says (p. 53),

... a growing perception of the fundamental inadequacy of bureaucratic organization, its inability to combine innovation with discipline at the levels required by a modern economy.

He goes on to suggest that it could be replaced by different types of participatory and task force models. Others (Heckscher 1994; Kernaghan 2000) talk about a “post-bureaucratic” administration.

Of the various replacements for (or arguably modifications of) bureaucracy, the most important, because they have actually been tried on a large scale, are New Public Management (NPM) and its first cousin reinventing government. At the risk of some simplification, both NPM and reinventing government seek to replace traditional Weberian-type bureaucracy with structures and approaches drawn from private sector and business management ideas and practice. There are differences between these two approaches (for a discussion of these difference, see Frederickson 1996), but the underlying ideas are in essence the same. The mission statement of NPM was not to replace bureaucracy per se; rather it was, *inter alia*, about breaking up monolithic public agencies. It encompassed entrepreneurialism, incentivisation, disaggregation and competition (Dunleavy et al. 2006). NPM’s proponents saw it as reinvigorating an ossified public sector with dynamic ideas and practices from private industry. Given that many private bodies were also bureaucracies, this amounted in some cases to bringing in new ideas about how to manage a bureaucracy better though other aspects of NPM, notably outsourcing of heretofore public functions and services to the private sector, were clearly targeted at breaking up the bureaucracy. NPM emerged in the late 1970s and gathered momentum in the 1980s during the Thatcher era in the UK. In its earlier years, it

was associated with “Anglo-Saxon” countries including New Zealand (which was something of a pioneer in this respect), the UK, Australia and the USA. Subsequently it spread to other countries such as India. Ironically the latter started to happen just at the point when a number of the early adopters were coming to the conclusion that NPM has been a failure and in the view of some something of a disaster. Reinventing government arrived on the scene somewhat later in the early 1990s.

Consequences of these movements included widespread privatisation, outsourcing, public–private partnerships, de-layering, decentralisation and fragmentation. The de facto primary public values underlying NPM were the so-called three Es: economy, efficiency and effectiveness. There were noises about better customer service, but primarily NPM was viewed as a way of breaking up and energising what were perceived to be lazy, monolithic and self-preserving public organisations. Unfortunately after three decades, many of the changes made in the heyday of NPM have had either to be reversed or have stalled. The jury is still out on reinventing government, but in time it too may go the same way. In a short but damning commentary on NPM Hood and Dixon (2015, p. 266) conclude that, while both the advocates and critics of NPM overstate their cases:

...overall, the evidence in our study seems to point toward a less than dramatic conclusion: that government broadly worked a bit worse (on fairness and consistency) and cost a bit more.

In summary, NPM managed to do harm to three different public values at once which is quite an achievement. Dunleavy et al. 2006 catalogue the list of NPM’s misjudgements including the idea that breaking up government into a myriad of small agencies would somehow result in better governance (New Zealand, for example, had over 300 such agencies at one point. Currently my own country, Ireland, has over 400). Ironically we are now back in a period of reaggregation. Dunleavy et al. set out an alternative vision that they call Digital Era Governance or DEG. As presented, DEG is half forecast, half proposal. The authors emphasis that this is not a back-to-where-you-started change, but a new emergent form of governance in which larger organisations can use ICT to avoid the problems which traditionally accompanied size. Whether it will turn out to be another false dawn remains to be seen. Unlike some other commentators and scholars, Dunleavy et al. have the humility to acknowledge that they may be wrong. Other recent proposals include Networked Governance (Stoker 2006) and New Public Governance (Osborne 2003, 2010) not to mention other ideas drawn from businesses such as virtual organisations, loosely coupled networks and dynamic coalitions. Many of these new organisational forms sound exciting, but only work in specialised circumstances (and carefully-chosen case studies). The world of public administration does not suffer from a shortage of rich and interesting ideas; what it is short of is forms of governance that citizens can be certain will safely and comprehensively replace bureaucracy.

A basic problem with all reform proposals is that governments need organisations and some of these organisations are necessarily going to have to be large if

they are going to be effective. This, Dunleavy et al. argue, is one of the key lessons from NPM. It is all very well to envisage a sort of technology-empowered deliberative democracy of hundreds of small entities interacting-like components of some administrative ecosystem, but running a modern state cannot be done using only loosely coupled networks, dynamic coalitions or free markets. Processing social welfare claims, gathering taxes, inspecting food factories and equipping and maintaining a military are large-scale operations which still need correspondingly large numbers of human staff as well as extensive and sophisticated computer systems to support them. Other government services such as licensing commercial aircraft, regulating energy markets, determining foreign policy or delivering public health services required highly skilled and professional staff. All need organisational forms suitable for their function.

One of the most widely cited papers on organisational forms is Mintzberg's *The Structuring of Organizations* (1979). Mintzberg identified six basic forms of organisation: the *simple structure*, the *professional bureaucracy*, the *machine bureaucracy*, the *divisionalised form*, the *adhocracy* and the *missionary*. As Mintzberg points out, the two forms of bureaucracy in this list have emerged as the forms of organisation that suit particular types of operation; in the first case where tasks are highly specialised and can be standardised (as, for example, in a social security department), and in the second where tasks require professionals to have control over their own work (as in a hospital or university). In a governmental context, bureaucratic structures can be and generally are *designed* to represent the interests of different stakeholder groups. Finance ministries focus on economy and parsimonious use of taxpayer's funds.⁵ Social security ministries look after the interests of the socially disadvantaged. Justice ministries are concerned with security. Agriculture ministries look after farmers and so on. In this way, bureaucracies enable different and potentially conflicting values to be simultaneously protected by different parts of the system.

It is important to note that this is not just a horizontal phenomenon; in a properly designed bureaucracy, such controls can be embedded in the hierarchy itself. One of the less noted, but critically important elements of Weber's model, is that *higher levels do not have the automatic right to override decisions made at lower levels in the hierarchy provided the latter are properly made*. This means, in effect, that a unit set-up to, say, ensure equality of treatment cannot simply be overruled by somebody higher up in the organisation who thinks equality is a luxury that the taxpayer cannot afford. It is not the norm to design managerial systems that operate this way; in fact, managerial systems are typically designed to enable the opposite where senior figures can override junior managers as the latter can be fired or moved more easily if they are foolish enough dig their heels in on some point of principle. Managerialism works in the private sector because private-sector decision

⁵Many years ago, I heard a senior Irish civil servant talk about her first day in the Irish Department of Finance (Treasury). Called to her "welcome" meeting with her principal officer, he looked at her and said "*Welcome to the Department of Finance Miss Keane. Never forget, as long as you work here you are the taxpayers last line of defence. That will be all. Good day to you*".

makers tend to be dealing with fewer and simpler decision criteria and far fewer stakeholders.⁶ The public sector is much messier. Managerial systems designed to maximise profit or shareholder value can afford to be much simpler than those necessary to determine what is in the best public interest.

Mintzberg was, of course, writing at a time when ICT still mostly meant mainframe computers though he has stuck with his models in later writing. A recurring argument in the e-government (and more generally in the information systems) literature is that technology enables new organisational forms (such as the aforementioned virtual organisation). There is not space to consider all of these; one will have to serve as an example. In the e-government world, there has been widespread enthusiasm (and many publications) about transformative government. One variant of transformation falls broadly under the heading of e-democracy. In this vision, the theory is that various affordances such as e-participation, e-consultation, open government data, co-creation, co-production, deliberative democracy and so on can be used to create new forms of networked governance. While there have been some experiments with such governance, especially at local level, there are as yet no strong reasons to believe or evidence to show that this type of governance would work on any sort of large scale. There are several reasons for this including a lack of citizen interest in engaging in such activities, resistance by those in power, the brute reality of politics and the sheer complexity of much public policy. Even carrying out a public discussion of the routing of a new motorway, a subject that often attracts considerable local public engagement, is difficult enough; trying to determine national defence policy this way would be insanity. In practice, many people are reluctant to get involved in politics unless it is local and affects them in a direct way. Those who do get involved tend to be, in the words of Captain Renault, the usual suspects i.e. pressure groups, political parties, lobbyists and NGOs some of whom have little interest in constructive debate or in public values such as equity, honesty or fairness. The level and quality of public debate in contemporary politics, even in so-called First-World countries, is far from encouraging. It is hard not to be depressed about the quality of debate about Brexit or in the 2016 US presidential election (where debate about policy was almost completely absent from the public airwaves) or about migration in several countries in Europe at the time of writing. Intelligent and deliberative, fact-based debate is not a strong feature of contemporary political discourse and information technology seems currently to be more of a contributor than a solution to this problem.

It has already been noted that an advantage of a bureaucracy is that it is possible to build formal checks and balances into its very structure. This can be done internally or externally. Two common external forms in which it appears are ombudsmen and regulators. The idea of an ombudsman is said to date back, again, to ancient China and the Qin Dynasty around 221 BC. Tribunes played a similar role in the Roman Republic. Regulators are a more recent phenomenon (though the

⁶A widespread criticism of modern corporate management and governance is that it only had to meet one criterion—shareholder value (which is usually conveniently aligned with the executive compensation system).

concept of a central bank dates back to England in 1694), but both have proliferated as one way to try to counter the worst effects of the shift towards market governance in the 1980s. One of the politically popular ideas of that period was that bureaucracy, seen as one step removed from good old fashioned Soviet style central planning, could be replaced by markets. It soon became clear that while markets are good at delivering television sets or beer, they work less well when it comes to public goods, natural monopolies such as railways or non-discretionary “products” such as health (as the state of the US healthcare system all too clearly demonstrates). As market governance failed time and time again, governments established regulators for everything from telecommunications to pensions to schools. Regulators and ombudsmen have turned out to be necessary to protect the public and public values. In an ironic twist, a new form of bureaucracy was created to control malfunctioning markets. To borrow from Mark Twain, reports of the death of bureaucracy have turned out to be greatly exaggerated.

One reason why bureaucracy survives goes back to Weber’s ideal form and some of its key concepts. There is a strong case to be made for having professional officials who do not have a stake in the outcome of decision and who are therefore more likely to be objective and impartial. There is a continuing necessity for somebody who can speak truth to power and while anybody can do that somebody who is both well informed and insulated from the consequences of telling power something it would prefer not to hear is more likely to speak out—especially if it is their job to do so. Citizens need protection from the arbitrary use of power. In democratic states, this means a separation of powers. The most important of these is an independent judiciary. Formal division of powers between different legislative bodies (as is the case in the USA for example) is another. An impartial and empowered civil service committed to the protection of public values is a third and often underappreciated form of protection.

Retaining the Benefits of Bureaucracy in a Digital Age?

If bureaucracy, notwithstanding its many shortcomings, possesses some qualities that are valuable, how might technology be used to enhance the latter and reduce the former? An argument that is sometimes put forward in favour of the use of technology for decision making in public administration is that it is impartial; once the system knows the rules or the decision-making criteria, it will implement them without fear or favour. It cannot be bribed or intimidated (though it can be hacked). It becomes the electronic equivalent of Weber’s objective and impartial professional. Notwithstanding this, one of the main arguments against replacing human decision makers with machines is that computers cannot always be programmed in advance to cope with every possible eventuality that might occur in unstructured or messy situations. As yet computers are not good at improvisation. There are few things as frustrating in life as running up against a system where the computer (or the telephone system) cannot handle the requirement/request that you have, but

which resolutely refuses to let you speak with a human being who might solve your problem and instead throws you back to the same menu of irrelevant options. With advances in artificial intelligence (AI) this may in time change, but for now there remains the problem of, in the words of a popular British television series, “Computer says no”.⁷ In the medium-term systems which can reason and which, if nothing else, will be able to register when human intervention is needed⁸ will emerge. However, it is possible even with current technologies to conceptualise an automated system that would provide some level of protection of public values. The following are two possible ways in which machine decision making might work in a way that protects public values by building bureaucratic concepts into the system. This might be called *public values by design*.

The first approach is *algorithmic*. Designers of such systems would need to determine in advance the full range of possible stakeholders, the potential public values involved in any decision the system might need to make and the potential for conflict between those values. Just as a human administrator or group has to weigh up all sides of an argument and make a judgement in order to arrive at a decision, a machine could be programmed to arrive at a decision using a given criterion or set of criteria. The latter could be firm or fuzzy. For example, if, in a given decision, there is a conflict between the public right to transparency and a personal right to privacy a computer might be given a set of rules and, if relevant, legal requirements to determine which prevails or to arrive at a compromise in the way that humans would. Such an approach might, say, use ideas drawn from AI and in particular from expert systems where trade-off decision making of this nature is common.⁹

The challenge is not so much to design such a system, but to design one that is general purpose, i.e. one that can handle a wide variety of even reasonably well-structured problems and decisions. Building a new system for every major decision would be expensive and in many instances hard to justify. This challenge is a formidable one. Consider, for example, a system designed to select, from a number of possibilities, the optimum route for a new motorway bypass. There will be numerous stakeholders in this decision with several different public values at stake. Everything from the geology of the underlying terrain to the impact on local ecosystems or child safety may find its way into the decision-making mix. A system designed to make this decision (as opposed to, say, a decision support system) would need to be problem-specific and probably context-specific. It could not be expected to (say) make a decision on abolishing a current social security benefit or changing the second-level school science curriculum. It might not even work for a different routing decision in a different part of the same country without major modification.

⁷This became famous as a catchphrase in the British TV comedy series *Little Britain*.

⁸Some systems, for example AI-based booking systems, already do this.

⁹It is noteworthy that much early work on informatisation in the 1980s focussed on the potential of expert systems in law and public administration.

This approach would seek to integrate the concept of impact analysis into systems. Regulatory impact analysis is a widely used method of trying to avoid unintended consequences when passing new laws (OECD 2009). What is required is development of a form of decision impact analysis for assessing the wider consequences of decisions. The impact of public decisions has long been assessed using, for example, models based on econometrics or operations research. Building such models is difficult, sometimes expensive and in many instances problem-specific. Even if we assume that the technology and resources are there to do this, we are still left with the problem of uncertainty and error, and this raises problems for another public value—the desire that public servants and politicians be accountable. As George Box (1976) famously observed, all models are wrong. Who is accountable if the computer makes a mistake?

Notwithstanding such problems with unstructured decisions, algorithmic decision-making systems could be cost-effective in situations where frequent and repetitive decisions need to be made. For example, there is no reason with why, with current technology, much traffic management and road policing could not be done by machines. Currently, a decision to fine somebody for breaking the speed limit is, at the margins anyway, at the discretion of the policeman who catches the person speeding. He may let the motorist off with a warning if the offense is minor. Computers can be programmed with such discretion (e.g. a warning for a first minor offence, an automatic fine for any subsequent offence, etc.). Such uses of ICT for day-to-day regulatory decision making are quite feasible. In summary, there is considerable potential for automated decision making in street-level bureaucracy; at higher decision-making levels, the opportunities for such automation are likely to be limited for some time.

A second possible approach is *structural*. This approach is somewhat heretical in terms of much thinking about ICT in government over the past four or five decades in that it would involve deliberately embedding a certain level of silos in systems. Recall that bureaucracy provides both vertical and horizontal separation of powers. Such a separate could be reflected in government computer systems. While an idealist might dream of a single centralised system which knows everything, eliminating duplication, problems with integrity, turf wars and all the other ills associated with silos and fragmented systems (Bannister 2001), citizens might argue that such a system vests far too much power in one location whether it is controlled by humans or not. In a horizontal separation of powers model, different government bodies would each have their own systems and their own data with only data which are genuinely common or public (such as names, addresses and social security or citizen numbers) being centralised. Thus, if the tax authorities want information from social security, they would have to seek it formally and the systems in social security could be designed not to release such information without meeting strict internal criteria (including referring it to a human decision maker when necessary). Such a system would necessitate both technical and political negotiations between different computer systems and political power centres. It would be based around *interoperability rather than integration* with clear designations of authority and control over different data sets and processes. Vertical

separation of powers could also be easily implemented and embedded in software. Such methods have been widely used for decades in computer systems. There is an element of this of [to borrow a phrase from Tobin (1978)] “*putting sand in the wheels*” which will be anathema to many, but it can be argued that the benefits are worth the price.

There are other possibilities a number of which have been discussed above. One is the idea of using the power of technology to empower a form of public governance by the citizenry—a technology-enabled form of direct democracy that would enable the people to keep the politicians and public servants on a shorter leash. The problem is that the evidence increasingly suggests that this does not work and runs the risk that those who can control or exploit the technology most effectively can impose their will on minority groups. The critical point is that for a healthy public administration, systems which replace human decision making with machine decision making need to be designed with all public values in mind, not just economic efficiency, greatest transparency or lowest cost.

Conclusion: Two Cheers for Bureaucracy?

This chapter is not intended to be a blanket defence of bureaucracy (for two lively defences see Goodsell 2004 or Du Gay 2000). As a system of governance, bureaucracy has many problems. In an ideal world, it might work quite well; in the real world, it can become a nightmare of Kafkaesque proportions. Nor, in a relatively brief chapter such as this, is it possible to explore many of the issues raised in the depth which they warrant. The objective has therefore been to present a line of argument and to challenge those who would consign bureaucracy to the scrap heap of history not just to say with what they would replace it, but to show why citizens should believe that public values will be better protected in the long run by such a system. In considering this question, NPM is an object lesson in what can go wrong when ideology and theory drive an agenda (as was, on a much grander and catastrophic scale, communism). It is not sufficient to assert that something is better; one needs to show why and to date the evidence that any of these new ideas will better balance public values is not convincing. This is not to say that bureaucracy, unlike the poor, need be forever with us; it is to say that until we know for sure that there is a better way to protect the interests of all citizens in situations where values conflict, we should be slow to abandon the bureaucratic model.

Looking beyond the prejudices and the horror stories published in the popular press why, if it has so many failings, does bureaucracy survive? This chapter suggests one reason namely that in a well-designed bureaucratic system, is it possible to defend, balance and vindicate multiple public values when policy and operational decisions bring them into conflict. It may well be possible to do this with other forms of governance, but Mintzberg’s work suggests otherwise. Other organisational forms may work well in specific contexts, but such special cases cannot be generalised willy-nilly. We all have a tendency to assume that what

works in our community or in our city or local authority will work everywhere and this is rarely true. Even a cursory glance through the history of both e-government and e-government research will reveal a tendency to naïve optimism which is seemingly immune to being proved wrong time and again. We need to start paying closer attention to history.

“*Somewhere, over the rainbow, bluebirds fly*” sang Judy Garland. Much of the speculation about life beyond bureaucracy exhibits a similar form of magical thinking. In terms of public administration, we are still in Kansas and likely to remain there for some time notwithstanding developments in ICT. In Robert Bolt’s play *A Man for All Seasons* (1966), there is an exchange between Sir Thomas More and William Roper, his daughter’s suitor. At one point More asks Roper if he would trample on every law in the land in order to get at the Devil. When Roper replies that he would, More then says:

Oh? And when the last law was down, and the Devil turned round on you—where would you hide, Roper, the laws all being flat? This country’s planted thick with laws from coast to coast—man’s laws, not God’s—and if you cut them down—and you’re just the man to do it—d’you really think you could stand upright in the winds that would blow then?

Those who would sweep away bureaucracy should pay heed. Bureaucracy is often a clumsy instrument, it can be inflexible, it is often inefficient and it can be infuriating. But it does provide citizens with a layer of protection against powerful groups be they politicians, lobbyists, special interests or overweening public officials. It is the ability of the components of a bureaucratic system to provide that last line of defence and to protect the weak that is critical—particularly in an electronic age. The ability and willingness of different components of complex bureaucracies to defend their own constituencies and their own patch may often be frustrating, but we eliminate it at our peril.

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A Trans-Disciplinary Approach Towards Understanding the State in the Information Society Era

Uroš Pinterič

Abstract Despite strong demands for specialisation, it is more and more obvious that modern research interests cannot be addressed in isolation—one could argue that even in research, the world is facing a kind of globalisation. The same is valid also for the understanding of the state, which is often reduced to certain components close to the individual researchers' interests. In this chapter, we shall try to understand the modern state from the perspectives of different approaches and shall try to establish a more complex view on the modern state, which is trying to perform its duties, but fails in doing so due to a lack of ability to synchronise different fields, or due to its inability to step out of the elitist approach to the role of government. In this manner, this chapter tries to provide multiple and interconnected arguments for reform of the state on the level of political and societal reality while understanding the technological development as a framework and not the primary factor of the social change. The final argument is that the information and communication technologies are providing the possibilities for the changes, but changes themselves happen predominantly in the direction and extent allowed by the elites.

Introduction

The state in the context of the digital age cannot be understood without taking into account different perspectives at the same time. This easily results in virtual chaos in research and argument; however, it is necessary to keep the multiple dimensions of the modern state in mind in order to understand its complexity (e.g. Cooper 2000). The main issue of this approach is that reasoning and, even more so, writing are rather linear procedures, which hinder us to clearly demonstrate the complexity

U. Pinterič (✉)

Faculty of Organisation Studies in Novo Mesto, Ulica talcev 3, 8000 Novo Mesto, Slovenia

e-mail: uros.pinteric@gmail.com

U. Pinterič

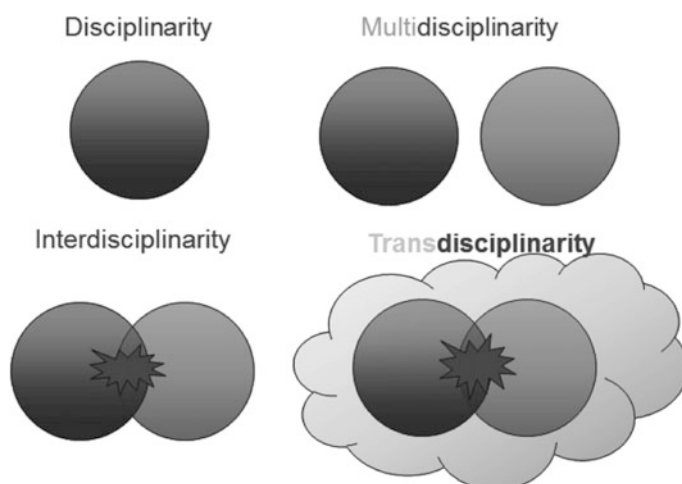
Department of Political Science, Faculty of Arts, Trnava University, Trnava, Slovakia

of the matter (e.g. Gardner 1982). However, we are able to present the reality from different perspectives. In this manner, this chapter shall provide a complex view of the state from the following perspectives: legal, political, administrative, social, economic, security, technological, natural, as well as other scientific perspectives, all under the assumption that the state is adopting modern technological trends. In this manner, we can for sure understand that despite the state is primary a political organism, it is regulated by legislation and has different social functions, including the function of providing different types of security. It runs its economy, predominantly relying on its natural and human resources, and tries to stay competitive in the sense of general and technological development. This, rather classical, definition shall be (or it already was) updated from the perspective of the concept of the information society (e.g. Webster 2014): politics transformed to e-democracy, the economy became e-economy (e-business), technical sciences out-powered social sciences in the redefinition of the society and the state as whole transformed into the e-state (Oliver and Sanders 2004).

This chapter follows two goals, one is to present a certain object of interest in the trans-disciplinary framework (Savšek et al. 2015), while also trying to explain the complex reality of the analysed object. More specifically, this chapter is trying to understand the “new” e-state and how the “e-” influences different aspects of the classical state. In this sense, this chapter shall be a trans-disciplinary criticism of the IT-supported state, focusing on malfunctions of the system from different perspectives and predominantly trying to support the thesis that despite information and communication technologies are able to solve certain issues, they can as well be considered as part of the problem—thus, technologies in many cases changed the state to a reality contrary to what was planned (e.g. Boudreau and Robey 2005).

Modern science strives for specialisation in different ways, by establishing new (sub) fields of research where it is possible to isolate the object of analysis and establish a deeper understanding of the object in question (see Porter 1990; Weingart 2002). Such approach to research is especially present (and quite questionable) in social sciences. In doing so, however, we often lose the focus on the research challenge as it exists in reality, which is an issue that must be taken into the account, since we thus easily loose the focus on what influences the daily life of individuals. The historical desire of social scientists to be taken as equals to natural scientists created strong qualitative methodology as well as a desire for specialisation (e.g. Lukšič 1997). While this can be appreciated as an objective approach to dealing with the objects of research, it also contributed to increasing the confusion over what is the definition of the object at stake (e.g. Weingart 2002).

In this chapter, we are trying to understand one of the centric objects in social sciences from the trans-disciplinary approach, which enables us to create the totality of the research object, which was previously decomposed by research specialisation. The trans-disciplinary approach was conceptually developing at the end of the 1990s. However, the screening of the literature shows that the attempt was quickly abandoned, mainly due to the lack of clarity what it is and how it shall be presented. According to Nicolescu (2008), one can simply understand multidisciplinary approach as the analysis of the research object by different disciplines’ methods



Picture 1 Different approaches to the analysis. *Source* Savšek et al. (2015: 172)

simultaneously and interdisciplinary approach as the analysing of the objects' spheres which are shared by different disciplines. The trans-disciplinary approach adds to the interdisciplinary approach also so-called soft knowledge, or outer (outside the disciplines, primary dealing with the research object) knowledge (see Picture 1).

In our case, we will try to present the role of the state in the trans-disciplinary approach. The state is probably one of the centric concepts to all social sciences (next to the human being), and it influences the daily life of the individuals and the society as a whole. Different disciplines understand the state in a different manner, and sometimes, it is even hard to agree among scientists what the state is. However, two basic positions can be established. First, the state is the sovereign government over a territory defined by a border, and the people living in that area. Second, the state is a regulatory authority. The first definition is holistic, simple and very general, while the second one points out the main perception of modern state functions regardless of the scientific discipline. Every field of research (with exception of political science, which adds some additional understandings of the state) is able to agree that the state is a regulator (of health care, security, research, business, justice, etc.) or the frame-setter of what is allowed/acceptable.

Development of modern information and communication technologies created a new situation, where the state could become something more/different—the virtual context created a semi-parallel world of the state (see Paulin 2013). On the one hand, the state only regulates the virtuality within the frame of different aspects (virtual security, virtual business, virtual education, etc.); on the other, the state becomes part of the virtuality, where new concepts indicate the possibility for the state to re-create itself on the conceptual level (e-state, e-democracy, e-government, etc.)

This chapter is trying to develop a complex understanding of the state in virtual conditions. First, we are trying to show that the real (classical) dimension of the

state cannot be neglected or dismissed as irrelevant (especially from the natural, economic and security perspective). On the other hand, we want to show that information technologies significantly changed legal, political, administrative and societal aspects. It is obvious that the state changed under the pressure of the technology. It is as well known that technology brought strong expectations in every state relevant aspect. However, much fewer arguments are presented on how the whole complex works in the reality.

Classical State in Modern Time

The classical state (of the twentieth century¹) can be defined by its characteristics, its role or in comparative time perspective. The classical state has a strong regulative role in all aspects of the societal life (e.g. Grdešić 1995; Lane 2000; Althusser 2008; Pinterič 2009). Through this, it occupies the position of the key actor in different policies (Hogwood and Gunn 1984) or establishes a patronising position in fields such as education and welfare. From a certain perspective, the modern state develops next to classical state-building also state-service functions (especially after the Second World War). After the collapse of the welfare state due to high expenses, the state started to withdraw itself from certain spheres such as education, research, social security, health care, transportation and partially also security, through the so-called New Public Management approach to public services, liberalisation of public services, or through the application of similar approaches (see Osborne and Gaebler 1993; Kovač 2002; Lane 2000). However, in most cases, the withdrawal was predominantly and utmost financial, while regulatory presence remained strong, especially in continental legal tradition.

However, it was recognised at the end of the twentieth century that this approach still takes too much control over different policies from the state, which introduced a new compromise between an all-regulatory bureaucracy and New Public Management privatisation approaches.² The neo-Weberian state emerged as a New Public Management adjustment of the statehood (Prijon 2012). The basic definition of it can be understood as the demand for the state to regain the control over the policies and to refine the idea that market principles can replace state government.³

The classical state was in many different ways unprepared for the modern times. Predominantly, it was in denial over the actual issues in global society.

¹It is hard to define classical state before mid-nineteenth century, since the nature of the political systems at that time was significantly different.

²One of the newest concepts is New Public Governance, which swings back towards New Public Management and is based on the premise of the neo-Weberian state-centrism (see Prijon 2012).

³One of the possible explanations is that the political elites got scared from possibility that the state will (due to the privatisation and new forms of communication) become reduced in the state-building elements as well as in what Althusser (2008) called ideological apparatus of the state. Neo-Weberian state concept justifies increased control with limited financial responsibility.

Redistribution of the wealth and food, low social security and connected quality of life are creating a dangerous mixture of increasing rage with the development of the technologies. A lack of understanding of the problem was first demonstrated in the late 1990s when so-called anti-globalists managed to mobilise the international society and geographically concentrate it in different localities (Seattle, Milan, Prague,...) (see Pinterič 2009). It took about 3 years that states understood that globalisation is not only economic, military, etc., but also societal. The response to the “danger” (expressed as a loud demand for the change of the world order) was in form of tightened control/surveillance over the population and increased security measures. Realistically, nothing was done to address the cause (further increasing inequalities on a global scale), which lead to repeating protests during the 2008–2012 economic crisis. A second warning of the negative globalisation with a historical connotation happened shortly after the anti-global campaigning when Al Qaeda sent the message that political games can be extended also to other continents and retaliations may happen a long time after the initial game started.⁴ However, it looks like the USA did not learn anything (see Makdisi 2002) from that point and with its irresponsible, oil-driven (see Phillips 2006) “democratisation” power games fostered the radicalisation of the Middle East and emergence of the ISIS. The European response to the consequent migration crisis was equally selfish in form of the German welcoming and redistributing policy towards immigrants, which enabled German economy to keep most promising migrants (by welcoming anyone who wants to stay in Germany) to run the future German economy, while redistributing the “undesired” among other European countries (by rejecting the asylum request, or based on other legal grounds for being dismissed from the country, if the person proves “unfit”) (on immigration policy in Europe, see Cyrus and Vogel 2016). All these cases illustrate a global reality, which cannot be ignored and avoided, but shall be properly dealt with.

State and the Technology

As indicated before, the state was forced to learn some basic elements of technology use. However, society proposed even more—the society demanded a new form of state, based on the technological advancements. In this perspective, new forms of “statehood” were proposed, such as e-democracy and e-governance (see Oliver and Sanders 2004). States were often also strongly supporting these concepts until they realised that such concepts are changing the classical power relations and provide enormous opportunities for all the benefits and issues that a rule of citizens would bring. E-democracy ideally means direct democracy enabled by information and communication technologies. It provides the opportunity to run a constant

⁴The Taliban movement, development of Al Qaeda and later ISIS cannot be properly understood separately from oil control and cold war issues (e.g. Gray 2015).

decision-making process without the inclusion of the parliament (see Paulin 2014). Thus, groups of experts (legal, economic, health, security, etc.) can draft law, which is then subjected to public debate for a limited period of time, after which comments are collected, ordered by the level of support by citizens, incorporated in the draft and then the updated draft law can be submitted for popular vote. Certain countries (Estonia) tried similar procedures but realised that the main problem lies in the participation, which remained extremely low, especially in the preparatory (deliberative) phase (Pinterič 2015).

On the other hand, the administrative procedures in the state can in many cases be automated within the appropriated typical parameters. In this manner, many rather basic procedures, which today often take months (e.g. issuing of construction permits) could be reduced to rather simple and effective electronic application. Such application would have to consist of basic details (cultural heritage protection info, locality and related specifics of the construction), technical details of the planned building, different supporting permissions (local community clearance, neighbour's clearance, etc.) and style information of the building (e.g. colour of the facade, material of the roof), etc.

Since all these information is, on one hand, prescribed and necessary available on the side of conditions and has to be as well provided on the side of the applicant, it would be rather simple to create an application comparing the allowed possibilities (back-office information) with the actual design (application information). The underlying algorithm would be able to check and compare both sets of data and issue the building permission technically in few seconds. This way, a number of stuck applications would significantly drop, and at the same time, it would allow the rationalisation of public administration for about 50% of civil servants dealing with this issue. The remaining civil servants in the field of construction permissions would be occupied with "second level" procedures/"complaints". When certain building permissions would be denied due to discrepancies between allowed standards and desired concepts, such application would be rejected in the standard automated process and would have to be assessed separately on the individual basis.⁵

Despite in neoliberal economic doctrine the state shall not play a role in the economic sphere, the state remains strongly present in the modern market economy. Regulations regarding the taxation, business procedures, the definition of contracts and the need for different reporting are creating an equally strong presence of the state in business as it would be in the case of the state economy, which was globally refused as economic malfunction connected to non-democratic types of political regimes. In the information society era, it looked for a while that the business would be able to escape the state over-regulation by globalisation which allows tax evasion as well as avoidance of workers' rights legislation. However, states started to

⁵There is incorporated danger that all rejected construction permissions would end up at the second level. This can be avoided by setting criteria when complaint is allowed (e.g. specific measures) and when not (e.g. missing documents and unclear ownership).

pay lots of attention to two economic fields connected to modern technologies. The first element is the assurance of access to the citizens' data regarding all their activities on the Internet (e.g. Patriot Act in the USA, EU Directive 2016/680, or the Slovenian ZEKom-1). Internet service providers as well as other companies, who are coming in touch with information from Internet users, are on the one hand bound to protect individuals' privacy, but at the same time required to provide all available data to national and international security agencies, which are often abusing the technological possibilities as it was revealed by Edward Snowden. The second thing that was assured by the state was the regulation of the IT-supported business environment in a manner to acknowledge cyberspace as a normal business environment, which is thus subjected to legislation and taxation. However, businesses were fighting the constraints of national legislation by (geographically/legally) relocating in order to escape national rules or just to spread its markets. In this manner, it became ambiguous which legislation shall be applied and to which extend. This way different companies (e.g. Apple in Ireland) were searching for tax avoiding options or they were expanding their markets into the cyberspace (see, e.g., the case of Karner, who has been accused of illegal business (selling the anabolic steroids) in the USA, despite his business was working in the territory of the EU and was not considered illegal in his home country) (see Ropac 2012). This shows the softening of the sovereignty of the state due to the fact that virtualisation and globalisations are erasing the borders and to some extent are reducing the states' ability to control their borders, while increasing the power of other states to penetrate into the territory of each other.

State Reaction to the Development of the Information and Communication Technologies

The state (through its legal representatives) is under no circumstances prepared to allow any of aforementioned administrative automatisations in full extend—formally, because constitutions and legislation do not allow such changes and, actually, because a significant number of people would lose their jobs and would create a huge influx of rather unqualified workforce to the labour market. Mismatching qualifications with work experience in public sector can be rather inappropriate in the business sector due to a different mindset. Saxena (1996) blames the inability of the state to change on administrative culture, which is predominantly reactionary and bureaucratic, and thus resist the change offered by new technical possibilities.

In this manner, the states' reaction in this perspective was to systematically try to maintain the status quo, and in the course of the last 20 years since the introduction of information and communication technologies as a driver of administrative change, many innovative projects were rejected or applied only partially (Pinterič 2010), despite politics/administration started to embrace the use of information and

communication technologies rather fast (e.g. 6 2004; Norris 2002; Purcell 1999). However, economic and political consequences would be too severe to allow direct democracy and automated administration to take over. In some cases, especially on the level of higher administration where decisions are often political and rather seldom done on strict and known criteria, automated decision-making is practically impossible. One of such partial attempts strongly supported with the presence of technology became participatory budgeting. Despite the idea being good, it soon became apparent that the problem is not in the mechanism but rather in the administration's inability, as well as unpreparedness to allow citizens to freely distribute bigger amounts of budgetary money. This can be seen also on the local level where municipalities, at least in Slovenia, allow only minor parts of the local budget to be distributed according to the preferences of the community. This indicates that even when the mechanism is available, the political decision will in most cases suppress potentials for direct democracy. A similar situation can be observed in the case of e-voting/e-elections, which in the past was considered as a remedy against increasing political apathy as well as a tool for changing the existing political balance. After two decades however, only few countries have introduced e-voting and are using it systematically (i.e. Estonia), while most of the countries maintain elitist political representation⁶ by infinite discussions if the electoral programme code shall be open or closed (such debate was quite alive for example in Slovenia), and whether or not the introduction of e-voting would have desired effects. The case of Estonia clearly shows that structure of participation as well as of electoral results does not change significantly, while the introduction of e-voting is a significant budgetary expense. Turnout results in the case of different Estonian elections showed that e-voting over the course of 10 years attributed for about 30% of all votes, but it did not increase the number of voters participating at the elections (see Internet 1). Additional observations regarding the age structure of e-voters in Estonia shows that there is an increasing share of elder people using e-voting (as a convenient way to execute their political rights), while young people represent the ever-smaller share of all e-voters (Internet 1). This indicates that the state/politics failed in their objective to increase political participation of young generation by introducing modern ways of expressing their basic political will. This observation leads to the conclusion that the accessibility of the public/political space is not the main reason for political participation and that the information and communication technologies as the facilitator are rather irrelevant. Based on this, it is possible to argue that political participation depends on the simple economic calculation of time, energy and the expected result increased for the personal motivation. Thus, the probability of political participation is the expected result multiplied by motivation and divided by multiplied spent time and used energy.

⁶Representative democracy can be considered elitist, especially in the combination with low turnouts, which shall, according to cyberoptimists, increase by introduction of the e-voting as additional channel of political selection (see Norris 2001).

$$\text{Participation} = (\text{exp. result} * \text{motivation}) / (\text{time} * \text{energy})$$

Even if we ignore this simplistic formula, politicians, as well as citizens, agree (by the fact of their behaviour) that a low chance of change, an enormous amount of consumed time and energy will discourage people to participate in politics. And in this formula for many things information and communication technologies are not a relevant factor, since the chance of change stays equally low and used energy and time does not change significantly or not at all.

Legally, the state reacted usually with caution to the options offered by information and communication technologies. Until the turn of the millennia, the progress was rather optimistic (see Norris 2001), but slow. After the 9.11.2001 events, states very quickly set up protective information structures and rules, enabling systematic surveillance legitimised by nothing but the trust of citizens (which later turned out to be abused) that the state will not overstep the boundaries set by basic documents defining individual rights (see Pinterič 2015).

States, based on the television communication experience, learned fast that things, which are not accessible, did not happen. In this manner, countries systematically control access to the Internet or at least to certain information for their citizens (e.g. China is very selective on the accessibility of information regarding the situation in Tibet). On the other hand, the USA are equally sensitive regarding the accessibility of pictures of dead American soldiers, despite they have no problem showing killed enemies. In this manner, we can speak of an ongoing information cold war, where intelligence and contra-intelligence activities are taking place on the regular basis. One of the last big cases were the systematic reports of international news agencies that during the attempt of Turkish coup d'état social media and Internet were down while in fact people were able to use the services uninterruptedly in practice and the possible disruption was more likely connected to the increased data traffic than state blockade of the Internet.

States started to take over the control over the technologies also in the economic sense by defining the rules of conduct in cyberspace. Europe was trying to create a tradition of a more citizen friendly environment,⁷ while the USA were more open for different business solutions which on the other hand enabled the companies to collect and manipulate enormous amounts of personal data which already lead to very real-life identity thefts and financial abuse and at the same time also created an enormous pool for economic and security profiling of individuals, which supports an increase of consumption (by targeted marketing) (see Graeff and Harmon 2002) and social/political profiling that supports political campaigning as well as defining possible threats.

In general, one can say that states are rather careless of the influence of information and communication technologies on the society as long as the state itself is not endangered or harmed. However, the state is missing an important part of

⁷There is long list of EU demands against (predominantly USA) companies to protect privacy of citizens (e.g. Schrems against Facebook) (Nielsen 2015).

virtual reality which has long-term consequences. People and their involvement in cyberspace creates a completely new society which is more and more controllable—an aspect which states appreciate (Pinterič 2015), but on the other hand it is becoming more and more alienated from the reality, which leads to unexpected behavioural patterns, which can further surprise the authorities just as anti-globalist demonstrations did at the turn of the century (Pinterič 2009). Despite control being possible, it seems that people will be always finding a better way to keeping their lives above the level of misery defined by the state. At the same time, the necessity of using technology is facing the initial rebellion, since people started to understand the risks of enforced need for constant accessibility initiated by the development of the information and communication technologies.

Assuring better outcome of the state relation to the technologies, it seems more and more obvious that technologies, as agents of change, have very limited potential (Paulin 2013). They have no self-initiated will and decision-making capacities, which would lead to an apocalyptic scenario of machinery taking over the humankind. However, the very same facts also mean that all the changes in sense of e-democracy, e-governance and different possibilities of stronger involvement of citizens in the public sphere are eminently political and not a technological option.

Concluding Remarks

Modern science understands the state in different perspectives, predominantly as a regulatory mechanism, which creates a rather stable and predictable environment. Different disciplines occasionally add some other definitions or try to understand state deeper, but this is rather limited to political science, law and public administration. In a time of specialisation of sciences, it is more and more important to move towards trans-disciplinarity in order to draw a complex picture and understanding of the phenomenon at stake. To this end, we need to keep in mind that specialisation, despite deepening the understanding of particular elements, also systematically blurs the nature of the objects of research.

In this perspective, this chapter tried to analyse the basic changes of the conceptualisation of the state in the information society, based on different perspectives combined with an outer experience in order to understand the reality holistically and in its broader complexity.

Not only that the state is developing over time, but the time itself is changing in the sense of the external environment of any object of research. Technological development and globalisation changed the reality of states in almost any given perspective—economically, politically, socially, environmentally, in the field of health, security, etc.

Information and communication technologies changed the role of the state and create the opportunity to be stronger connected to the people. However, classical political relations allowed this to happen only to an extent, which still allows elites

to control the reality. In this manner, one can say that all the potential for reducing the state and increasing the direct democracy was reduced to the increased insecurity and higher control over the general population.

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Part II

Disruptive Innovation for Governance

Participatory Budgeting and Democratic Innovation: Some Analytical Variables

Lígia Helena Hahn Lüchmann

Abstract Having originated in Brazil, participatory budgeting (PB), notably the model created in Porto Alegre in 1989, has served as a reference for democratic innovation in Brazil and abroad, instigating diverse evaluations of its potential and limitations for promoting social, cultural and political-institutional change. This chapter maps the debates on the theme to identify the definitions of PB used in the literature and the analytical references that have been used not only to understand the rise, maintenance and success of PB programs, but also to assess their benefits to democracy, identifying variables and mechanisms which have a greater or lesser capacity to bring about democratic progress, such as the dimension of associativism, or of civil society, and the political will and or commitment of governments, as well as their institutional designs. Aiming at making a contribution to the field of studies on processes of democratic strengthening, the central issue consists in, based on studies on PB programs, discussing to what extent the process of diffusion and pluralization of participatory budgeting has not only affected its definition, but also challenged approaches centered on those variables and mechanisms.

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L.H.H. Lüchmann (✉)

Departamento de Sociologia e Ciência Política, Centro de Filosofia e Ciências Humanas,
Universidade Federal de Santa Catarina, Campus Universitário, Trindade, Florianópolis, SC
CEP: 88040-900, Brazil
e-mail: ligia@cfh.ufsc.br
URL: <http://ppgsp.posgrad.ufsc.br/>

Introduction

Among participatory government programs, participatory budgeting (PB) became internationally recognized for creating spaces and institutional rules for involving sectors of the population in a dynamic of discussion and formulation of state public budgets. For this reason, even though it was created almost 30 years ago, PB still is currently recognized as one of the most innovative democratic experiences, occupying a privileged place on the list of recurring examples praised by the field of studies on contemporary democratic innovations. In general, PB is known for being capable of making viable the most central normative perspectives of democracy, such as political inclusion and the promotion of social justice, and for its ability to reverse the growing—and alarming—rates of distancing and political distrust expressed in electoral abstention rates, decreasing involvement in political parties, and even in the decline of militancy among unions and other forms of social associativism (Dias and Allegretti 2009). Moreover, it is also considered an instrument for improving the performance and accountability of the traditional governance model of hierarchical, outdated, unrepresentative and insulated bureaucracies (Moynihan 2007).

The PB model from Porto Alegre has had broad repercussions in Brazil and abroad, whether as a pioneer initiative in the construction of a complex mechanism for political interlocution with the population, or because of its endurance as a public policy. More or less inspired by the Porto Alegre model, hundreds of municipalities in Brazil and abroad have adopted PB. Despite shortcomings with precision, Sgueo (2016) estimated the occurrence of between 618 and 1130 examples of participatory budgeting processes in Latin America. In Europe, participatory budgeting increased from 55 to over 1300 processes between 2005 and 2012.

Given this scenario, there have been an increasing number of international studies on PB following, according to Sintomer et al. (2008), a pattern of expansion regarding the kinds of cases analyzed and a refinement of methodologies. This expansion can be seen in studies that seek to present broader panoramas both nationally (Bassoli 2012; Montecinos 2011; Ruesch and Wagner 2013; Dias and Allegretti 2009; Ganuza et al. 2013; Bland 2011; He 2011; Yan Wu and Wang 2012; McNulty 2012; Pape and Lerner 2016) and across countries (Goldfrank 2006; Shah 2007; Sintomer et al. 2008, 2010; Ganuza and Baiocchi 2012; Dias 2013). In addition, comparative studies began to include not only evaluations of PB from the same region or country, or between cases in different countries (Goldfrank 2006; Matos and Neves 2008; Cabannes and Lipietz 2015), but also between PB and other participatory forms, with a diverse set of analytical approaches (Horochovski and Clemente 2012; D'albergo and Moini 2007; Gugliano 2004; Avritzer 2008; Lüchmann 2008).

The growth and diversification of experiences are certainly caused by the variety of their contexts, questioning the characterization of many experiences as PB. One of the impacts of this scenario of propagation of PB concerns the very definition of

the process. After all, how is it possible to group so many different experiences into a single definition? The responses identified in the literature point to at least two developments. The first is a lightening of the normative weight of concepts which, anchored in the Porto Alegre model, emphasize elements of popular sovereignty, self-determination and social justice (Ganuza and Baiocchi 2012; Cabannes and Lipietz 2015); the second is the construction of typologies that attempt to group and characterize the different models being implemented (Sintomer et al. 2008, 2010, 2012; Cabannes and Lipietz 2015).

The concern for assessing the democratic benefits of PB has been a central analytical reference, identifying variables and mechanisms with greater or lesser capacity—or success—to produce results which point to democratic progress, such as the dimension of associativism, or of civil society, and the political will and or commitment of governments, as well as their institutional designs. It is worth recalling that depending on the institutional type in focus, these variables have been combined with other dimensions, such as, in the case of PB, the administrative and financial capacity of municipalities which have implemented participatory processes, the conflicts within the executive branch and or in its relations with the legislature (Dias 2000; Avritzer and Navarro 2003; Souza 2011; Wampler 2005).

Nevertheless, a broader reading of the more recent literature demonstrates the explanatory capacity of these factors is directly related to the model of PB under consideration and its context. The elements of political will and the tradition or configuration of civil society, for instance, lose explanatory strength in models commanded by international agencies or by non-partisan political forces, and designed for participation by individuals. In addition to bringing to light other investigative dimensions, these studies also contribute to reviewing and complexifying these variables, motivating an expansion of and interlocution between theoretical references from democratic theory. These are the revisions this work intends to present by discussing, based on the literature, to what extent the process of diffusion and pluralization of PB has not only affected its definition, but also challenged those analytical variables. Thus, the first part addresses the main definitions of PB in the literature, pointing, beyond some conceptual disputes, to the weakening of the normative weight of the original concept, due to the characteristics of the expansion and diversification of the models adopted worldwide. The second part reviews and problematizes the main analytical references that have been used for the evaluation of the programs, demonstrating their achievements, as well as some of the analytical challenges concerning the processes of diffusion and pluralization of PB.

Definitions and Typologies of Participatory Budgeting

The original Porto Alegre model inspired a concept of participatory budgeting which incorporates some of the central premises of the participatory and deliberative theories of democracy, as new relations are established between civil society

and the state, relations organized by a set of rules and procedures which aspire to political inclusion and the promotion of social justice. Participatory budgeting presents an alternative to the traditional dynamics of formulating the government budget, as it creates mechanisms and spaces for direct and representative participation, involving a broad contingent of the population in the process. In Porto Alegre, the PB experience began with the victory of the Popular Front coalition in the municipal elections of 1988,¹ and it was gradually established as the central policy of the municipal administration. The experience has certainly changed over time and has encompassed several conflicts and contradictions.

In general, the process is organized in an annual cycle including the following stages: assemblies, community and regional meetings in each of the 16 regions, setup for the discussion of their priorities, with government officials providing information and feedback; regional assemblies for the election of regional delegates; and councilors for the participatory budgeting Counsel, responsible for defining the priorities of all regions based on established criteria and sending the budgeting matrix for the municipal council to approve. This final document becomes a basic reference—public and legitimate—for controlling and supervising the government's actions and expenses.

The model resulting from this process integrates different spaces of participation and of political representation, configuring a broad and complex institutional system for political discussion and deliberation about the destination of part of the municipal government resources. According to Fedozzi (2007), PB in Porto Alegre was sustained by two basic principles: universal rules for participation in institutional and regular instances of operation and an objective method for defining future investments which give shape to an annual cycle of public activities for preparing the municipal budget.

PB in Porto Alegre is a government program which operationalizes a mixed process, combining direct participation in regional assemblies with representation by delegates and council members in forums and in a council. In this sense, although it incorporates an important participative dimension, PB is directly related to the dimension of political representation, whether by its anchorage in representative structures (composed of delegates and council members), aspect analyses generally neglect, or by its subordination to rules, institutions and actors from the representative democratic system. In this sense, and according to the assessment of Fedozzi and Martins (2012), the use of concepts such as “direct democracy” or “non-state public sphere,” among others, represents “an ideological and or normative version of the real experience of PB, given that it supposes the absence of the state (which is not truly the case) in the operationalization of this institutional configuration, and overestimates the autonomous components of the action of the civil society actors in relation to the state.” For these authors, what characterizes PB is co-management, to the degree that it involves a “*process of shared construction*

¹Coalition composed of the Worker's Party (PT) and the former Brazilian Communist Party (now PPS).

of the rules of the participatory system.” (Fedozzi and Martins 2012, p. 17 emphasis by the authors).

A set of elements has been responsible for the classification of PB as a democratic innovation: political inclusion; subversion of clientelism and corruption; promotion of government transparency; and redistribution of resources in support of the neediest sectors of the population, thus promoting social justice and practical education for citizenship (Abers 1998; Santos 1998; Wampler 2007; Fedozzi 2009; Baiocchi 2001; Cabannes 2004; Avritzer 2006; Goldfrank 2006; Sintomer et al. 2010, 2012). Secondo and Lerner (2011) highlighted six benefits of PB: “It deepens democracy, increases transparency, and promotes greater efficiency, increasing citizens’ trust in government. It educates people about democracy and spending, and promotes social justice by leveling the playing field and directing resources to communities in need. Lastly, it helps build community, bringing neighbors together in pursuit of common goals.” Considering these characteristics, PB practices have built a conceptual framework that finds resonance in the theoretical frameworks of participatory democracy and deliberative democracy.

One of the concepts found in the literature is empowered deliberative democracy (EDD), which is related to experiences that aspire “to deepen the ways in which ordinary people can effectively participate in and influence policies that directly affect their lives (...). They have the potential to be radically democratic in their reliance on the participation and capacities of ordinary people, deliberative because they institute reason-based decision making, and empowered since they attempt to tie action to discussion” (Fung and Wright 2001, p. 7). This is reminiscent of some deliberative assumptions based on the exchange of arguments, conditions of equality and participative plurality (Baiocchi 2001).² Nevertheless, some authors question the validity of the deliberative referential to understand processes such as PB, given that in general deliberative studies are aimed at controlled experiments such as deliberative polls or citizen juries (“mini-publics”). As indicated by Wampler (2012), differently from programs such as Deliberative Pollings, PB is not an artificial environment, but a complex and concrete process of dispute over scarce public resources. For Pateman (2012), a representative of the participatory democracy line, although PB involves deliberation, it is very different from the controlled deliberative experiments as it opens an opportunity for the participation of all the citizens from a city. In this sense, according to the author, “Participatory Budgeting is not a specially commissioned event for which a few citizens are chosen, but a regular part of a vital area of municipal government. Nor is it a supplement to existing democratic institutions. PB changes and democratizes the structure of one part of those institutions” (Pateman 2012, p. 10).

Nevertheless, this “strong” perspective has been increasingly reformulated, or softened, as PB experiences multiplied and diversified throughout the world. Among the mechanisms of such diffusion, the literature emphasizes the role of a few central institutions, particularly the World Bank, the UN and The European

²Avritzer (2006) reinforced deliberative elements in PB.

Union (Sgueo 2016; Goldfrank 2012), as well as national and international meetings and events on the topic, the creation of PB networks, and the activism, on an international level, from certain social actors, such as international NGOs and especially “PB ambassadors” (Oliveira 2016), individuals who have heavily promoted PB in several countries.

The international dissemination of PB encompasses relevant variations of scale, from local (village, district or municipal level) to broader areas, including states, regions and, as is currently the case in Portugal, the national level. Beyond this territorial dimension, we find thematic PB processes and, in fewer cases, programs directed toward specific populations (actor-based), such as the youth, migrants, the elderly, women and indigenous peoples (Cabannes and Lipietz 2015). Studies have also pointed to the diversity concerning the amount of resources allocated to PB programs, the level of social participation, the level of formalization, the communication channels (face to face, online or multiple channels) and the empowerment involved (whether they are consultative or deliberative).

As a result, we find many variations, depending on the diffusion process, the political system, the amount of resources available, the political culture and the institutional format. A study on PB in Germany (Ruesch and Wagner 2013), for example, indicates the specificities of the model predominantly adopted in that country: consultative, aiming at modernizing local governments, and making them more responsible in a context of crisis in municipal finances and of growing dissatisfaction and electoral abstention. The cases in Portugal also point to some of these characteristics. In general, consultative PB programs limit the autonomy of civil society and have a relatively thin deliberative content, as well as a weak concern with social justice (Dias and Allegretti 2009). Montecinos (2011) also warns of the frailty of PB processes in Chile. In many cases, they depend strongly on the political will of mayors, have a low degree of decentralization and support from civil society and political parties. Although Italy features cases closer to the Brazilian experience, Bassoli (2012) suggested that because of a distancing from participatory and deliberative requirements, PB should be seen there as an administrative tool, therefore better defined by the concept of “participatory governance arrangements,” a subtype of “Local Governance Arrangement.” In this study, PB is one of a number of local governance tools promoted by political authorities counting on the participation of citizens in a process of deliberation and debate.

As the diversification of cases makes it more difficult to theoretically frame the concept, it stimulates efforts to build models and or typologies, causing conceptual repercussions. The aforementioned studies of Sintomer et al. (2008, 2012) are examples of this. With the goal of conducting an international comparative study, the authors basically define PB as the “participation of non-elected citizens in the preparation and or allocation of public finances” (2012, p. 75). To construct a standard of reference within a situation of diversity, the authors establish a methodological dimension including a minimal set of criteria or requirements necessary for identifying an experience as PB:

1. The financial and/or budgetary dimension must be discussed; participatory budgeting involves dealing with the problem of limited resources; 2. The city level has to be involved, or a (decentralized) district with an elected body and some power over administration (the neighborhood level is not enough); 3. It has to be a repeated process (one meeting or one referendum on financial issues does not constitute an example of participatory budgeting); 4. The process must include some form of public deliberation within the framework of specific meetings/forums (the opening of administrative meetings or classical representative instances to ‘normal’ citizens is not participatory budgeting); 5. Some accountability on the output is required. (Sintomer et al. 2008, p. 168)

Thus, at one end of a scale we have experiences which, according to this original model, meet the criteria of participatory democracy, or of EDD, being examples of broad participation by citizens, (true) power to make decisions, and the promotion of social justice. At the other end, we have top-down experiences that are consultative and lack the action of an active and autonomous civil society. Between these two points, various experiences have been undertaken, whether by sectors of the left or by NGOs dedicated to the promotion of change, although distanced from more global, decentralized perspectives (Sintomer et al. 2010). In the study by Cabannes and Lipietz (2015, pp. 10–11), these differences are grouped in a typology based on three models of PB: (a) *Managerial/technocratic tool*, which consists in a technocratic model designed to optimize and improve the efficiency of public resources and service delivery; (b) *Good governance instrument*, characterized by efforts to “strengthen links between actors, to deepen social ties and improve governance”; and (c) *Political instrument to radically democratize democracy*, a bottom-up approach of decision making with the overall objective of deepening participatory democracy.

This variation is also consequential for theoretical models of evaluation regarding the success or failure of PB processes. After all, as recognized by Sintomer et al. (2012), a participative democracy requires in particular a strong political will and a mobilized civil society which, while independent, is willing to cooperate with local governments. Political will, characteristics of civil society and institutional designs are some of the analytical variables that stand out in PB studies (Lüchmann 2002; Avritzer and Navarro 2003; Goldfrank 2006; Allegretti 2013). We shall see below how a series of studies, both in Brazil and throughout the world, questions these variables, whether in the sense that their pertinence is related to the participatory model in question, or by adding analytical complexity by recognizing other elements and social and political relations involved in processes like PB.

Conditions for the Rise, Maintenance and Success of PB Programs

As we have seen, the proliferation of PB has interfered with the analytical foundations built having as a reference the Porto Alegre model that originated—and developed—from a combination of a leftist political project with an active civil

society in the city. The variation of contexts and models of PB points not only to the explanatory limits of variables such as political will and the presence of an associative tradition, but also to the fact that, as indicated by Goldfrank (2006, p. 25), “none of the interpretations captures the broad variety of the designs and results.”

Ganuza and Baiocchi (2012) identified two phases of expansion of PB (before and after the late 1990s): The first phase is characterized by the implementation of a process of political-administrative reform of the left (in Brazil and in some Latin America countries), compatible with principles of social justice and good governance, constituting a political-electoral strategy that innovates in the administration and intercedes with local clientelistic practices. In the late 1990s, PB entered a new phase: “PB attracted international attention, becoming a best practice that was taken up by a number of international networks. Now, it traveled as a politically neutral device, one that could improve governance and generate trust in government” (p. 2).

In fact, studies indicated a change in the bases (of actors and institutions) which promote PB. On the one hand, PB is no longer a mark of leftist parties. In the more specific case of Brazil, various parties have been adopting programs denominated as participatory budget, as analyzed by Wampler (2008). For some authors (Sintomer et al. 2010; Goldfrank 2012), if the first generation of programs, which was highly politicized, was aimed at the promotion of important social changes, other actors, particularly the World Bank and other international agencies, prompted a trend of political neutralization as they implemented and or supported PB in different parts of the world, creating the need to build more solid analyses of the democratic impacts of these practices. In addition, studies indicate implementations of PB under the initiative of other political and social sectors, for example the Chicago experience, spearheaded by a city councilman (Secondo and Lerner 2011), or in Guelph, Canada, undertaken by sectors of the local civil society (Pinnington et al. 2009).

Although it is the consensus that each experiment rests on a certain social and political configuration that establishes local specificities, some factors have been considered essential for the issue of democratic accreditation to the experiences, which are: political will; institutional design; associative density of civil society; and the administrative and financial capacity of governments (Lüchmann 2002; Avritzer and Navarro 2003; Allegretti and Herzberg 2004; Dias and Martins 2016). Font et al. (2016) systematized three analytic dimensions which, taken together, incorporate these variables—polity factors, process design factors and policy-related factors, including “the policy area of the proposal, boundaries of political competence for the issue, degree of support the proposal has within government and civil society” (p. 12).

As previously indicated, the greater or lesser pertinence of these factors depends on the origin, the proposals and the organizational model. In fact, “strong” PB (which promotes political-administrative reforms and the sharing of decision-making power, guided by social justice, inclusion and political learning) appears to depend more directly on the political will to provide resources, time and energy for the process, as well as on an organized and active civil society. Nevertheless,

although relevant, these variables have been the object of criticism and questioning, including: (a) their voluntary character, to a large degree disconnected from the broader political field and from relations of interest and power running through institutions, political and social actors (Souza 2001, 2011; Romão 2011; Wampler 2005; Goldfrank 2006; Allegretti and Herzberg 2004); (b) an implicated normative concept of civil society which obscures the differences and relations it maintain with political society, hindering a relational view that recognizes and identifies the interests and strategies of political power crossing these borders (Silva 2006; Dagnino et al. 2006; Romão 2011; Souza 2011); and (c) an emphasis given, in the case of institutional design, to the rules of operation of the participatory institutions, not considering, on the one hand, the design of the executive and legislative branches, and the configuration of the political parties conforming the broader framework of the arena of conflicts found in those spaces; and on the other, the spaces, contacts, agreements and informal articulations occurring outside the formal structures of participatory institutions (Wampler 2011).

The implementation of government programs or experiences, as is the case of many PB processes, certainly depends on the will and the commitment of the respective governments.³ It is not by chance that the large majority of the cases of creation and extinction of PB processes is related to the period the political group sustaining it remains in power. Thus, several studies demonstrate a positive relationship between an electoral defeat and the extinction of a PB process. Nevertheless, studies evaluating their permanence over time (in consecutive administrations) indicate the need to complexify this variable. They point to tensions between political will and commitment, effective government control and electoral dimensions (Borba and Lüchmann 2007; Tatagiba and Teixeira 2006). According to Souza (2001), explanations of a voluntaristic nature tend to assume the will and the action of some non-hegemonic groups on the decision-making scene, not recognizing, among other factors, the networks—of circumstance and traditions—which sustain any type of political action. Goldfrank (2006) and Wampler (2008) emphasized the importance of factors such as the level of decentralization of authority, the quantity of resources provided and the degree of organization and consonance of the parties in opposition.

Thus, programs like PB are subordinated not only to the will and moods of elected governments, but are also subject to the logic of the political system and, therefore, to the interests and strategies of other sectors, as well as party and legislative leaders. As emphasized by Goldfrank (2006, p. 18), in addition to

³The behavior of the executive branches in the implementation and maintenance of participation is related not only to its centrality in the set of government actions, but also to the amount of resources—human and material—destined to the process. Thus, the place occupied by participatory institutions in the administrative structure; the amount of resources allocated to the viability of participatory processes; the commitment to and respect for the participatory deliberations; the involvement of key representatives of the administration; the promotion of measures for training participants; and the guarantee of institutional infrastructure are some of the indicators of this variable (Lüchmann 2002; Borba and Lüchmann 2007).

catering to different political interests—in particular winning elections—the results of innovations such as PB “are not necessarily those originally expected. The consequences depend not only on the intention of the designers and the local contexts, but on the intentions and strategies of other actors, including political opponents.”

In addition to the dimension of the political field, studies also highlight the importance of the social dimension, in particular the configuration of associative practices and their role in participatory dynamics. In general, the incorporation of this variable is anchored in the premise that the development and the accumulation of horizontal social relations (the basis of associativism) are central to breaking with clientelism and authoritarianism. The associative, reflexive and autonomous character of civil society supports the thesis that the richer the associative life, the greater the chances of implementation of a democratic institutionality aimed at social change and the generalization of citizenship. The Habermasian concept of civil society is linked to this recognition of its importance for the successful implementation of participatory experiences and or institutions (Cohen and Arato 1992; Habermas 1997). Civil society, in its Habermasian concept, is characterized as a set of collective subjects who conceptualize new issues and problems, call for social justice, and organize and represent the interests of those who are excluded from political debates and deliberations. Here, the intrinsic relationship between civil society and democracy is found in the thesis that civil associations are the institutions responsible for and specialized in reproducing cultures and traditions, and forming collective identities and practices based on solidarity and social justice. Since it involves participatory spaces, like PB processes, the existence of a critical and autonomous civil society is considered central for establishing an effectively deliberative democracy (and therefore founded upon democratic processes of expression) and for influencing public opinion about the need for, and use of, resources.

However, several studies also point to the risks and limits of mythical conceptions of civil society that overestimate the democratic qualities of associations, NGOs and social groups (Gurza Lavallo 1999, 2003; Dagnino et al. 2006). Thus, differences and inequalities within this broad and complex field of social action are highlighted, as authors claim that the relationship between civil society and political society is often obscured (Romão 2011). After all, empiric evidence has shown these collective subjects are heterogeneous in their objectives, interests and forms of organization; have common ties, interests and strategies with political sectors; and are contextually influenced in their formulation and political action. This questions the establishment of this field as necessarily democratic in its nature.

By mapping the studies on PB, we can identify, in addition to the analytical stance pointing to positive impacts civil society has on PB processes, positions that, in various forms, indicate fragilities in the political representation of civil society, whether due to the way the political system reacts to threats of losing a certain monopoly on the representation of the population as PB is introduced, or to the

clientelistic and dependent relations civil society might establish with it,⁴ or even to a process of elitization through domination and control over certain social organizations (McNulty 2012). Montecinos (2011) remarked, among other factors, the scarcely protagonist role of Chilean civil society in PB processes in that country, as well as the clientelistic relations between associations and municipal political actors.

Differently, the study by Ganuza et al. (2013) comparing three PB cases in different cities across countries (Porto Alegre, Córdoba and Paris) by analyzing the conflicts between public authorities and civil society shows how the introduction of PB elicited reactions, in particular from residents' associations, to a degree to which it weakened their role as political mediators between the population and political authorities, shifting the political power to public spaces for direct participation by citizens. In this sense, the study shows that the alleged representativeness of associativism is not a given. To the contrary, it can be contested by political sectors, unorganized citizens or other associations.

If these studies point to the fragilities and the diversity of civil society, in addition to revealing close ties with political society, they also indicate opportunities for change coming from the implementation of participatory spaces. To a large degree, these changes are due to the format or institutional design of these spaces. In the case of PB, it makes a difference whether they are consultative or decisive; if they incorporate citizens and or associations; if they institute assemblies and meetings in the different territorial spaces or if they centralize the decision-making space; and if they are legal or informal.

In general, the institutional design is the set of rules, criteria, spaces, norms and laws which operationalize the participation and respond, to a large degree, for its greater or lesser capacity for deliberation and inclusion. As we know, an institutional design is the result of several factors and varies according to the objectives, the composition of social and government actions, the correlations of forces and interests, the sector of participatory politics and the insertion of this sector in the field of institutional political power.

Numerous studies describe some characteristics as composing a paradigmatic design of PB: It involves the more immediate needs of the population; is self-regulated; institutes standards for the redistribution of resources; stimulates individual participation; is consultative and deliberative; counts on territorial assemblies; promotes measures for inclusion of the more excluded social sectors; adopts rules for representation by delegates and council members; and provides the public ampler access to rules and information. One of its results is the capacity for inclusion of the populations most excluded from public deliberations, in particular the increased participation of people with low income, low educational levels and women (Baierle 2005; Fedozzi 2007; Lüchmann and Borba 2008). Although "age-old relations are not altered through the simple magic of a new institutional

⁴Several studies do not make reference to civil society due to the contexts and models of PB. See, for example, the cases of Germany (Ruesch and Wagner 2013) and China (He 2011).

design” (Baierle 2005, p. 22), the political and social forces, as well as the rules conforming the institutional design, are important elements for understanding the greater or lesser participatory and deliberative capacity of participatory institutions, whether by the criteria and mechanisms for mobilization and composition, which disturb some sectors and stimulate others, or by rules for distribution of resources, formation of agendas, processes for choosing representatives, spaces of participation and several other indicators. The participants’ profile is to a large degree defined by their respective institutional designs and their capacity to innovate over time, which are in turn responsible for the greater or lesser inclusion and plurality of the participation and representation. Rules concerning the composition of PB councils are also important in the evaluation of the greater or lesser capacity for influence and vocalization of the different participatory actors. In the case of Peru, for example, where PB is aimed at the participation of civil society organizations, participation has an elitist nature and a consequent difficulty of inclusion of more informal sectors and organizations (McNulty 2012).

Lopes and Allegretti (2012) presented an overview of PB cases in Portugal and sought to evaluate the elements responsible for the instability or fragility of the programs, especially concerning their ability to be maintained over time. According to these authors, the extinction of PB programs can be explained by few factors, such as economic problems that affect the availability of resources for executing construction projects, changes in the political agenda and results of electoral processes when they change the parties in power. Nevertheless, the variations in different experiences point to the importance of another, more internal, factor—and are related to the model adopted, if more consultative or co-decisive, “where (by many different methodologies) citizens can have a say on the final budget design (regarding the percentage/amount designated to PB)” (p. 10). Thus, the model adopted is an important factor for the success or failure in the ability to maintain participatory experiences over time, particularly their solidity in democratic terms. A difference is made, therefore, by the structure and scope, not only of decisions, but also of the population involved in the participatory processes. Hence, we can suggest the possibility of change in political culture as an inheritance of robust participatory institutions, a motivating factor for the continuity of participatory processes even when the political field changes.

Final Considerations

After almost 30 years of history, PB continues to be recognized as an exemplary model of democratic innovation. Through diverse mechanisms of diffusion, thousands of PB programs have been implemented in different areas of the world, what has motivated an increase in studies on the theme. One of the impacts of this scenario of propagation of PB concerns its very definition. After all, how is it possible to group together such different experiences into a single definition? The responses identified in the literature point to at least two developments. On the one

hand, a reduction in the normative weight of concepts anchored in the Porto Alegre model and the construction of typologies that seek to group and characterize the different models being implemented; on the other, a need to review and complexify readings based on models which frame or freeze certain attributes or dimensions, making invisible dynamics and elements that go beyond the limits of such readings.

Despite different conceptual and investigative fronts, and considering the diversity of PB models, the concern with an evaluation of their potential to promote democratic innovation continues as a central analytical reference. It has developed been to identify variables or conditions of viability and maintenance, such as the dimension of associativism, or of civil society; the political will and or commitment of the respective governments; and institutional design, in addition to issues referring to the degree of political-administrative decentralization and the financial capacity of the municipalities. Nevertheless, the more recent literature raises other investigative dimensions, contributing to reviewing and complexifying these variables, as well as motivating an expansion of and interlocution between theoretical references from democratic theory.

In the case of relations with the broader political system, the studies indicate the importance of gauging the influence of politics on the dynamics of PB, the space it occupies and the impacts it has on political-administrative structures, in addition to considering its relationship with other channels of participation generally found in cities. Thus, PB is inserted into the political system and is subordinated not only to the will and moods of elected governments, but also to the structures and strategies of the political-institutional field, expressed by different elements, such as the distribution of authority in federative levels, the logic of coalitions and of electoral interests, the conformation—and the complexity and scope—of the field of public policies and of the sectors of state bureaucracy. Regarding the relevance of civil society, it is also worth noting that, despite the criticism mentioned above, PB programs have been implemented in contexts of low associative tradition, as shown in several studies sponsored by the World Bank (Shah 2007). Lastly, concerning institutional designs, attention must be paid to the structure of the executive and legislative branches, the configuration of the political parties conforming the broader framework of the arena of conflicts found in those spaces, and the spaces, contacts, agreements and informal articulations occurring outside the formal structures of participatory institutions.

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Virtual Currencies as the Starting Point for Changes in Financial Ecosystem

Alicja Mikołajewicz-Woźniak

Abstract The paper aims at changing the perception of virtual currencies, presenting them as the potential starting point for the fundamental changes in the functioning of the financial system. Its initial part deals with the problem of lack of universal definition of virtual currencies, pointing out crucial features to be included while conceptualizing the term. Subsequently, the paper describes the operation rules of decentralized virtual currency schemes, indicating that the schemes' introduction is the reflection of current environmental trends. It also determines virtual currencies' capacity to substitute cash, scriptural money or e-money. The paper emphasizes that the technology underlying virtual currencies offers benefits going far beyond the schemes themselves and has the potential to transform the financial market. The distributed ledger technology starts to penetrate various segments of the market, modifying the functioning of institutions forming its infrastructure. The technology makes it possible to eliminate intermediate links in processing transactions, accelerate various operations and reduce costs as well as provides the ground for the development of common standardized way of transferring various types of assets. Financial institutions pave the wave for transferring the technology into new fields. The public administration might take the emerging opportunity as there are a variety of possible applications of the distributed ledger technology in the sector. Since taking the full advantage of all the opportunities requires a significant regulatory progress, the final section of the paper addresses the problem of developing appropriate legal framework not stifling innovation on the market.

A. Mikołajewicz-Woźniak (✉)

Faculty of Law and Administration, Adam Mickiewicz University in Poznań,

Al. Niepodległości 53, 61-714 Poznań, Poland

e-mail: awozniak@amu.edu.pl

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Introduction

Virtual currency schemes launched to the market with the advent of Bitcoin have posed a challenge to the retail payment systems. Based on innovatory informatics solutions, they have provided their users with previously unavailable opportunities. Constantly, introduced technological improvements eliminate detected shortcomings or implement desirable new properties. The evolution of the distributed ledger technology underlying the schemes not only drives the virtual currencies market development, but is also embraced by traditional financial institutions, encouraged by the vision of boosting the effectiveness of their operations.

Despite the growing significance of virtual currency schemes and more and more widespread use of their underlying technology, the universal widely accepted definition of virtual currencies has not been developed so far. The following paper deals with the problem, indicating crucial features to be included while conceptualizing the term. The subsequent presentation of decentralized schemes operation rules is the basis for determining the potential of virtual currencies to substitute cash, scriptural money or e-money.

However, the technology that underlies virtual currency schemes offers benefits going far beyond functioning of the schemes. As it brings a radical change in the processing of a variety of transactions, it has a potential of being introduced to the numerous financial market segments. Therefore, the following paper describes the technology capacity to transform the market. It also emphasizes that other sectors, including the public administration, should consider going along the way paved by financial institutions.

As currently observed changes intensify the necessity of regulating the virtual currencies market, the final section of the paper addresses the problem of developing legal framework which will not stifle innovation on the market. Although numerous risks related to the schemes are not analyzed in detail, the awareness of their existence has induced the author to indicate the legitimacy of acceleration and harmonization of legislators' activities. The assessment of the virtual currencies impact on the economy requires weighing their pros and cons. Nevertheless, one should bear in mind that appropriate regulations can significantly reduce emerging risks.

The Need for the Development of Virtual Currencies Universal Definition

Defining virtual currencies is a crucial first step to analyze their phenomenon, take the proper actions to fully exploit occurring opportunities or regulate the market effectively. However, the diversity of virtual currencies' variants hinders the development of common and widely accepted definition which could be used by

various entities for miscellaneous purposes. Moreover, the term is gradually changing its meaning with the constant market development.

According to one of the most frequently cited definitions, a virtual currency is “a type of unregulated, digital money, which is issued and usually controlled by its developers, used and accepted among the members of specific virtual community” (European Central Bank 2012).

Nevertheless, the above-mentioned developer’s control may be in practice illusory. The rules of the scheme’s functioning are indeed established by its inventor, but the system is often out of their control just after the scheme’s launch. Its further operation or actual cessation of functioning is determined by the users’ decisions and actions. Therefore, the system is usually controlled by the community (not by the developer). Owing to the growing acceptance, the possibility of use as the means of payment for “real” goods and services as well as convertibility, virtual currencies can no longer be considered as intended for members of specific virtual community. Furthermore, due to more and more common attempts to regulate activities of some virtual currency services providers, the market gradually loses the status of being unregulated.

In the light of the above arguments, the cited definition seems to be inconsistent with the ways in which the main virtual currencies schemes, especially Bitcoin, function and is considered to be obsolete even by its creator—European Central Bank. The revised definition describes virtual currency as “a digital representation of value, not issued by a central bank, credit institution or e-money institution, which in some circumstances can be used as an alternative to money.” It also points out that “the term virtual currency scheme is used to describe both the aspect of value and that of the inherent or in-built mechanisms ensuring that the value can be transferred” (European Central Bank 2015).

The qualification as digital representation, though in principle accurate, might be in fact misleading. It can be related to either e-money or virtual currency. The former is defined as an electronic store of monetary value on a technical device that may be widely used for making payments to entities other than the e-money issuer. Primarily, it represents one of the fiat currencies, while virtual currencies do not. Furthermore, the issuer of e-money has to be an authorized entity and such a requirement does not apply to virtual currency schemes. Nonetheless, owing to still barely noticeable but increasing involvement of traditional financial institutions in virtual currency operations, existing borders between entities engaged in virtual currency schemes and credit or e-money institutions may soon become blurred.

The crucial element of the definition proposed by the European Central Bank is an in-built mechanism for direct transfer of value between the schemes users, being the basic characteristics of decentralized models. This is entirely innovative feature of virtual currencies differentiating them from the “traditional” ones. Given that, it is reasonable to develop the second part of the cited definition, which at first glance seems to be a complementary statement but is indeed its core element.

Definition introduced by European Central Bank, despite its popularity, is not universally applicable. Those developed by other institutions usually focus on the function of virtual currencies as the medium of exchange, disregarding their

potential use as a unit of account or a store of value as well as investment asset. This approach, noticeable in reports prepared by the Financial Crimes Enforcement Network—a bureau of the United States Department of the Treasury (Financial Crimes Enforcement Network 2013) and European Banking Authority (European Banking Authority 2014), results from these institutions' scope of interest. Nevertheless, it narrows the perspective of analysis of the phenomenon, leaving aside numerous possible uses of virtual currencies. Their actual use depends on the users' choice and potentially varies in time. Consequently, it should not be pre-ordained in introduced definitions. This was taken into account by the staff of International Monetary Fund. According to the proposed definition, "virtual currencies are digital representations of value, issued by private developers and denominated in their own unit of account. They can be obtained, stored, accessed, and transacted electronically, and can be used for a variety of purposes, as long as the transacting parties agree to use them" (He et al. 2016).

As it is presented above, definitions of virtual currencies tend to vary depending on the scope of activities of engaged institutions or the purpose of the document containing the definition. Thus, virtual currencies may be defined differently for various purposes, for example, taxation of profits gained by scheme's participants, licensing of virtual currency service providers or preventing money laundering (European Central Bank 2015). The fact that the universal definition of virtual currencies does not exist deepens the ambiguity surrounding the schemes. This is also disadvantageous considering the legitimacy of the comprehensive regulation of analyzed issue and the need to coordinate some activities of various authorities on a global scale.

The need to develop a common and widely accepted definition of virtual currencies is becoming perceptible. The conceptualization of the term requires taking into account essential characteristics of virtual currency schemes. They constitute a very heterogeneous group. There are a lot of possible classification criteria, but due to the scope of the conducted analysis, their division into centralized and decentralized models seems to be crucial.

Centralized virtual currencies have a single administrating authority—an entity able to control the system. Such an administrator not only issues the currency and establishes the rules for its use, but they also maintain a central payment ledger and are entitled to withdraw currency from circulation. The examples of such currencies are Linden dollars and World of Warcraft gold. Decentralized virtual currencies (usually referred to as cryptocurrencies) are based on a software introduced as free of charge, community-driven and open-source projects. Such schemes function without the above-mentioned central administrating authority. They use cryptography to control the money supply and payment transactions. The most significant representative of this category is Bitcoin, but the group also comprises altcoins (Financial Action Tasks Force 2014).

Because of the currently observed and anticipated impact on economy and financial system described in the following sections, further analysis will focus only on the decentralized models.

Operation Rules of Decentralized Virtual Currency Schemes

The open-source software underlying a decentralized virtual currency scheme enables storing, sending and receiving virtual currencies as well as monitoring processed transactions. The users of this software form decentralized network, exploited for currency creation and transaction execution.

Volume of virtual currency units to be issued as well as the time intervals of their release is predetermined by the scheme's developer. In decentralized schemes, new coins are created automatically and then delivered to individuals called miners. The opportunity to obtain a randomly distrusted fee (being a fraction of newly created digital coins called the "block reward") together with processing fee used in some cases (paid by users as an incentive to include their transaction in the next block) provides miners' remuneration for voluntarily devoting some resources (i.e., computing power of their hardware) to solve complex mathematical problems enabling the system to function.

The system uses cryptography to control the money supply and payment transactions, which eliminates central authority in the role of currency issuer and the need to rely on a third party during transaction processing. This prevents introduction of false currency units and double spending of possessed coins, which results in providing required system security.

The established network of virtual currency's users enables almost instant peer-to-peer worldwide remittances as well as other value transfers. While carrying out transactions, the ownership of virtual currencies is verified and a set of transactions called a block is validated by a distributed computer network. Then, each transaction is recorded in a blockchain acting as a history log (Böhme et al. 2015).

In the decentralized models, the scheme users do not hold directly units of the currency. Instead, they store keys giving access to a certain account balance forming a part of blockchain, allowing them to spend available funds. Those private keys may be just paper print-outs, but in practice they are held in dedicated digital wallets. Though such wallets can be set up by each scheme user, services of so-called wallet providers are widespread. Those services make it possible not only to store users' virtual currencies cryptographic keys, but they also facilitate initiating transactions and provide an overview of their history. Offered applications are designed for various data carriers and provide the possibility of data storage on desktop PCs, diverse mobile devices or in the cloud.

Hereby, the system eliminates the need of having a bank or another financial institution account and replaces it by the use of a special application. This resolves problems related to potential bankruptcy of the institution holding the money. Due to the limited access to the place of keys storage, the virtual currency cannot be also seized or frozen by any authority in case of intervention undertaken by the government or other agencies.

The initiation of a transaction involves uploading a transfer instruction, signed with the scheme user's private key and identifiable with the public key. While its processing, miners create a new block which is then spread to the network and becomes a part of the blockchain.

The remittances in virtual currency together with the exchange transactions executed on one of existing platforms distribute "mined" digital coins among scheme users. On exchange or trading platforms, virtual currencies are sold or bought against currencies being legal tenders or against other virtual currencies. Exchange operators act as exchange desks and then are engaged in currency conversion. Trading platforms are only marketplaces bringing together actual buyers and sellers. In both cases, the relation between demand and supply determines the value of a particular virtual currency. It is not pegged to any real-world currency.

Virtual currency schemes resemble, to some extent, retail payment system. One of the main differences is that the former does not use intermediaries. The process of transaction verification and settlement is not immediate but is relatively fast. It may last up to 60 min. and depends mainly on the used virtual currency scheme. Miners, being a kind of "processing service providers," can require a processing fee from payers, but it is not the prerequisite of the executed payments. Even if the fee applies, it is estimated to be less than one percent of sent amount (Cusumano 2014). Given that it is far lower than those charged by credit-card companies or banks, especially for foreign orders.

Basing on the above properties, virtual currency schemes allow for payments for online goods and services as well as for those offered in real-world transactions. Such transactions are not only secure, fast and cost-effective, but also final and irreversible (unlike credit-card charges). They do not necessarily entail currency risk exposure since some exchanges offer immediate conversion services to payees accepting virtual currency payments. Particular schemes provide further facilities, and thus, their operation rules may vary.

Bitcoin, launched in January 2009, provided the first fully implemented cryptocurrency protocol. It was a pioneer on the market and is still its leader. According to the available data, in July 2016 its share in the whole cryptocurrency market capitalization was over 80 percent. Altcoins is the term referring to alternate cryptocurrencies, being alternatives to Bitcoins. The published list of virtual currencies contains almost 700 items (Crypto-Currency Market Capitalizations 2016).

Introduced virtual currency schemes are very often copies of Bitcoin, based on its protocol, identical to the prototype or featuring only minor modifications. They have been developed with the intention of improving the functionality of the system or just creating a competitive network able to attract new participants encouraged by the possibility of mining new digital coins, while such an option for an average Bitcoin user has become so unlikely that in practice unattainable. Consequently, majority of altcoins have slightly different technical characteristics when compared to Bitcoin. They aim at eliminating their predecessor's shortcomings. Most of the emphasis has been on improving speed, robustness and privacy. A further way of

differentiating among virtual currency schemes is the addition of extra features. A few altcoins aim to serve niche constituencies (White 2015). Virtual currencies initially appearing on the market used a proof-of-work system to validate transactions and maintain the blockchain. Current efforts aim to develop more efficient proof methods, such as systems based on proof-of-stake (de Jong 2014).

Among hundreds of currently available virtual currency schemes, there are only a few notable competitors. The foundation of their success is different approach to the method of problem solving (DeRose 2015).

The second in the cryptocurrencies ranking—Ethereum—is referred to as a sort of Bitcoin 2.0. While the archetype offers only basic functionalities, Ethereum software provides a variety of additional features, including the possibility to create online markets and programmable transactions known as smart contracts (Popper 2016). A short description of those contracts will be presented in one of the following sections.

Being the third on the virtual currency market—Ripple—is described by its developer as a currency not for end users. It provides the transfer mechanism allowing banks around the world to directly transact with each other without the need for a central counterparty or correspondent. Its developer calls it “correspondent banking without correspondent banks.” Ripple users are financial institutions executing transfers in government-backed currencies for their own clients. The Ripple underlies those transactions, being not visible to bank customers (Greene and Shy 2014).

Virtual Currencies as a Potential Alternative to Cash, Scriptural Money or E-Money

The number of virtual currency schemes is growing rapidly. Although their transaction volume is still insignificant while compared to traditional payment systems, the acceptance of Bitcoin as a means of payment is constantly increasing. Noticing this progress, respective authorities are forced to admit that such currencies, not being money, resemble it and can be used as its alternative. In fact, the evolution of money is inextricably bound to society’s evolution. Money is a tool exhibiting a great capacity to adjust to changing requirements, reflecting the character of the time.

Indeed, globalization, virtualization, networking, active customer participation and striving for cost reduction are the tendencies visible in many various sectors, including financial services. Virtual currency schemes are the reflection of the present trends. They are predestinated to become global. The lack of central issuer and intermediaries, together with the network idea on which they are based, lets customers create currency and the accompanying payment system according to their own needs. Technical solutions underlying the schemes ensure expected

cost-effectiveness of value transfers (Mikołajewicz-Woźniak and Scheibe 2015). While the economy and commerce are becoming more globalized, currencies not tied to a sovereign are increasingly appealing (Ly 2014).

Thus, the introduction of virtual currency schemes is the reflection of current environmental trends. Their growing popularity confirms that they are the right answer to emerging challenges. Nevertheless, virtual currencies experience serious difficulties with fulfilling any traditional function of money. In view of still relatively low level of acceptance among the general public, the virtual currencies utility as a medium of exchange remains relatively insignificant. The extreme volatility of virtual currencies limits their use as a unit of account. The same factor, together with the lack of one's obligation to redeem digital coins and uncertainty regarding further scheme's existence, makes such currencies of little use as a store of wealth. Therefore, virtual currencies do not have sufficient capacity to replace fiat currencies, although they may slightly reduce the use of the latter. They can be actually used only as contractual money, which requires an agreement between the payer and payee on the acceptance of such a means of payment. This will rather not change in the near or distant future, but under certain circumstances virtual currencies can substitute cash, scriptural money or e-money. There are indications that the degree of the mentioned substitutability will increase with time.

Nowadays, the acceptance of virtual currency payments is not widespread, especially in "bricks-and-mortar" or online shops offering non-virtual goods and services. According to rough estimate made in 2015, only three in every 10,000 businesses accepted virtual currencies payment (European Central Bank 2015). The statistics point out the relatively small significance of Bitcoin as a payment alternative, but the situation is gradually changing. The largest increase in virtual currency payment acceptance concerns e-commerce merchants. Consequently, Bitcoin is more commonly viewed as having the potential to go mainstream. At the same time, it starts to resemble the traditional model of financial market with the developed infrastructure of various virtual currency service providers. This, in turn, reduces its competitiveness. The technology underlying virtual currencies offers, however, benefits going far beyond virtual currency schemes themselves.

Transformation of Financial System Based on the Distributed Ledger Technology

The distributed ledger technology—verifying and recording transactions on a peer-to-peer basis without the involvement of any central authority—"establishes trust between otherwise unrelated parties over an untrusted network like the Internet" (Andreessen 2014). Thus, it has broad implications for the way of transacting over electronic network.

Virtual currency schemes undoubtedly pose a challenge to retail payment systems. They offer not only a global reach, but also the possibility of executing

transactions within minutes, cost-effectiveness and the high degree of security. Since the listed features are more difficult to acquire in the case of the cross-borders payments, the impact of virtual currency schemes will probably be greater for such remittances. The schemes may also facilitate arranging micro- or even “ultrasmall” payments, allowing businesses to sell on the Internet very low-cost goods or services, which would be otherwise infeasible (McCallum 2015).

In fact, the distributed ledger technology can be successfully employed by banks and other payment system operators. In 2014, one of German banks—Fidor—began to leverage the Ripple network and its protocol as the integral part of transaction infrastructure, thus offering its customers instant and low-cost transfers in any currency (Rizzo 2014). Subsequently, tens of financial institutions, including the biggest world banks, have founded the consortium called R3 to develop commercial deployments of the distributed ledger technology designed for the financial industry (Kelly and Chaves-Dreyfuss 2016).

The technology that allows virtual currency schemes to function can be adapted by traditional financial institutions or other business entities, including stock exchanges, central securities depositories, securities settlement systems or trade repositories. As a fast, accurate and secure recordkeeping system, the distributive ledger technology is a probable ground for a revolutionary change in processing variety of transactions. Consequently, it has implications for various financial market segments and entities forming their infrastructure.

Indeed, the blockchain technology is suitable for any assets that hold value, including securities. It has become the ground for the development of “cryptosecurity” technology adjusted for issuing financial securities. In 2015, online retailer Overstock.com used it to issue private bonds via the Internet. In December of the same year, the company got the approval of the Securities and Exchange Commission to issue stock being a public offer in the same way. This signaled a significant shift in the way financial securities will be distrusted and traded in the years to come (Metz 2015).

This is just the beginning. Nasdaq intends to use the distributed ledger technology to streamline financial recordkeeping. Preparing itself for the future recording trades of public firms stocks listed on its exchange, it has built Linq, a blockchain-based service for issuing pre-IPO shares, connecting private companies with investors. The first transaction on the platform was completed in December 2015. In May of the following year, Nasdaq introduced blockchain services being a part of its launched Nasdaq Financial Framework, designed to provide end-to-end solutions to Nasdaq’s financial infrastructure clients including traditional exchanges (del Castillo 2016; Orcutt 2015).

The interest in the use of the distributed ledger technology is constantly growing. An increasing number of business entities, comprising a wide range of financial institutions, considers the implementation of various transfer and recordkeeping solutions based on it. Major stock and commodities exchanges are among the more active in seeking to investigate the technology through trials and investments (Rizzo 2016). When it is applied to securities markets, it could speed the clearing

and settlement of certain financial transactions, reduce or even eliminate the counterparty risk, facilitate the recording of ownership of a variety of securities and the safekeeping of assets as well as be used to directly issue digital securities and track their ownership (European Securities and Markets Authority 2016).

The distributed ledger technology that will be used for financial services will differ from the blockchain designed for Bitcoin in a number of ways. In particular, while the former is an open system where everybody can contribute to the validation process, the latter will rather be a permission-based system with authorized participants only. This difference is important to keep in mind because it has a number of consequences in terms of potential benefits and risks (European Securities and Markets Authority 2016).

The foresight regarding forthcoming changes is really hard. The technology applications developed in the future may differ materially from those currently in use. For instance, to improve transaction transparency it is possible to create a purpose-built private blockchain with different levels of access, in which auditors or regulators placed at a higher level could keep track of all operations, while the latter would remain invisible for other system users (Adriano and Monroe 2016).

The above-listed examples are not only simple illustrations of ample opportunities related to the implementation of the distributed ledger technology. They point out that the technology underlying virtual currency schemes starts to penetrate various segments of financial market and is gradually adapted by financial institutions forming the market infrastructure. The technology will modify the rules of their operation. It aims at eliminating intermediate links in processing transactions, accelerating them and providing coveted cost reductions. It also may be the ground for the development of common standardized way of transferring various types of assets. There are indications that virtual currency schemes created and introduced to eliminate the banks' intermediation, ultimately will radically change the way of financial institutions functioning and thus, increase the efficiency of their operation. They actually have the potential to transform the whole financial sector in a fundamental way.

The Distributed Ledger Technology Implications for Public Administration

“Some commentators have suggested that the key to understanding Bitcoin is to think of it as a protocol, akin to those that underpin the internet. Others have extended this analogy further, suggesting that digital currencies may be thought of as an ‘internet of money’. But since the potential applications are, in principle, broader than just payments, the distributed ledger technology may perhaps be better described as a first attempt at an ‘internet of finance’” (Ali et al. 2014). Taking this course of thinking leads to the conclusion that the distributed ledger technology

transferred to other sectors of economy, including the public administration, might serve as their “Internet.”

“An examination of the economic properties of a blockchain-based currency suggests the technology’s true value lies in its potential to facilitate more efficient digital-asset transfers. For example, applications of special interest to the legal community include more efficient document and authorship verification, title transfers, and contract enforcement” (Kiviat 2015).

Indeed, there are much more possible applications of the analyzed technology in the public administration sector. Due to extensive recordkeeping, which is characteristic of the sector, streamlining the process based on the technology would probably bring about enormous benefits, including cost savings. Moreover, it might provide the efficient way of tracing document flow.

The opportunities of the distributed ledger technology go far beyond simple improvements in operation, especially, if we consider the potential of smart contracts. Smart contracts, being one of the concepts formed on the basis of the blockchain protocol, can be defined as programs that create encoding for different conditions and outcomes. They effectively translate contractual terms like payment conditions or confidentiality agreements into computational material. These contracts are self-enforcing or self-executing. Therefore, they can provide payment automation for a variety of transactions. After the occurrence of predetermined conditions, they give explicit consent to a cryptographic block exchange. The blockchain role in such contracts replaces a third party required to resolve a legal dispute and excludes the possibility of litigation (de Meijer 2015).

Smart contracts provide a variety of uses. They might, *inter alia*, be the ground for operations that could be defined as “automated taxation” of certain transactions. For instance, while making payment on online trading platform, in accordance with the terms encoded in the smart contract being the basis for the transaction, the transferred amount could be automatically divided into seller remuneration, platform operator fee and due tax. Consequently, based on a single payment order an automatically split transfer would credit the accounts of target recipients, including this belonging to a tax office. Such transaction would be simultaneously booked in an automatic manner, thus saving a lot of bureaucratic work. Similar operations, entirely feasible from the technical point of view, are not as futuristic as they seem to be at the first glance. For some, they might, however, be ironic since virtual currencies schemes are perceived as perfectly fitted for tax evasion.

It is clearly seen that the distributed ledger technology offers a lot of potential benefits. Financial institutions pave the wave for transferring the technology into new fields, and thus, they themselves take on the majority of financial burden related to the process. The public administration might take the emerging opportunity. Unfortunately, it may take decades before the public sector is able to fully exploit advanced informatics technology solutions offered by virtual currencies. Nevertheless, the idea is worth considering.

Coordinated Regulation Non-Harmful to the Market as a Challenge Posed to Authorities

Taking the full advantage of all the opportunities of distributed ledger technology, underlying virtual currency schemes requires not only the removal of a number of technical shortcomings, but also a significant regulatory progress. In many countries, the legal status of virtual currencies and their related businesses is still not precisely determined and legal uncertainty remains a significant obstacle for further development of the system. The rapidly growing interest in virtual currency schemes forces, however, responsible bodies to react to the phenomenon. Therefore, a number of central banks, supervisory authorities and respective government agencies have taken a stand on virtual currencies. Their responses differ depending on the type of the authority being the decision-maker and the country of its origin. So far, little consensus exists on how to regulate virtual currency in the best way (Tu and Meredith 2015).

In many cases, the actions taken have been limited to issuance of warnings regarding the risks associated with virtual currency schemes. In some countries, respective authorities have made statements specifying the legal status of virtual currencies, especially Bitcoin, and clarifying the applicability of existing regulations to their schemes. A number of these authorities have specifically pointed out that from the legal point of view virtual currencies, contrary to their name, cannot be considered as currency and do not have the legal tender status as well as do not meet the definition of a financial instrument. In some jurisdictions, certain activities related to virtual currencies—including engagement of financial institutions—have been even prohibited. Many countries take, however, efforts to regulate the market, consenting for its further development. Their legislators consider defining operating rules of virtual currency service providers, imposing licensing requirements and supervising the market. Some of them have already introduced such regulations (European Central Bank 2015).

Nonetheless, virtual currency schemes have remained largely out of the scope of the current regulatory framework, especially in the European Union countries. This can partly be explained by difficulties with interfering in virtual currency market.

The lack of system operator makes it hard to enforce any legal regulations. The rules of virtual currency scheme functioning are established by each system's developer. But releasing the software underlying virtual currency scheme to other users generally deprives this entity of control over the created system. The control is, to some extent, taken over by the community of the scheme users. This makes it impossible to control the system by exerting influence on developer's decisions, especially considering the fact that this individual's or group's identity may remain unknown.

While the operator of the scheme actually does not exist, their participants are scattered throughout the world. The access to available funds is obtained via the Internet and the users' location is hard to determine. Since the process of transaction execution enables the involved parties to remain anonymous, their identities may be

impossible to trace. Indeed, owing to the public ledger it is feasible to trace the history of any given payment and in favorable circumstances link public keys serving as identifiers to users' identities (Meiklejohn et al. 2016). The scheme's participants may, however, counteract tracing them by using anonymizers. They are tools and services designed to obfuscate the source of virtual currency transaction and facilitate anonymity.

The system has global reach and enables cross-border value transfers. Moreover, various service providers ensuring or facilitating the smooth virtual currency scheme functioning form a complex and diffuse infrastructure. The interference in the activities of a selected entity has a limited impact on the functioning of the whole system. Tasks performed by the eliminated participant can be taken over by another entity anywhere in the world. Such activities are hard to monitor since their performers may operate outside of the conventional financial system. Those entities can deliberately seek out jurisdictions with convenient regulations.

Decentralized virtual currency schemes allowing anonymous peer-to-peer value transfers seem to exist in a digital universe entirely outside the reach of any particular country (Financial Action Tasks Force 2014). Regulating cryptocurrencies themselves is not feasible, since it is problematic to indicate the applicable law and the authority empowered to interpret the system's rules and procedures as well as to enforce binding regulations. Focusing on identifying particular users is too time-consuming and costly (although those individuals have to be aware of potential tax implications involved with certain virtual currency transactions). The most appropriate way to interfere in the market is to oblige specified service providers to comply with applicable regulations. This is not an easy task since their activities cut across the responsibilities of various bodies and institutions at the national level, whereas they operate on a global scale (He et al. 2016). The rapidly evolving blockchain technology, constantly modified business models of virtual currency schemes and changing roles (functions) of their participants exacerbates the problem with specifying the legal framework for the system.

Virtual currency schemes do not fit in with existing regulatory constructs. Therefore, regulations that are in force may be unsuitable for simple extension to virtual currencies. Legal framework tailored to traditional financial services or investment solutions may fail to accommodate the unique attributes of virtual currencies. Consequently, the enactment of comprehensive new legislation specific to virtual currencies that would advance designated regulatory objectives seems to be a more appropriate solution. Current thinking about virtual currency regulation is too narrowly focused on specific substantive issues (Tu and Meredith 2015).

Legislators should consider the fact that the distributed ledger technology is adaptable and has the utility beyond transmitting value in the traditional money-transmitter sense. Regulation aimed at the blockchain money-transfer and payment functionalities must not create an unintentional chilling effect on other functionalities of the technology. This requires precision in tailoring the scope of regulation (Kiviat 2015).

Given the way of virtual currency schemes' functioning, the effectiveness of regulatory actions is largely dependent on the degree of their international

coordination. A patchwork of inconsistent national-level regulatory responses to the mentioned schemes seems to be doomed to failure. Solving the problem requires the development of international guidelines regarding the most appropriate national regulatory responses to dissemination of virtual currency schemes, which could provide necessary harmonization of legal regulations to be introduced (He et al. 2016).

Regardless of the actions taken by legislators in particular countries, the virtual currencies market will inevitably develop. Introduced regulation may, however, have impact on the rate of the market growth and its development directions.

Conclusion

Virtual currency schemes correspond with changes in the economy, reflecting predominant economic tendencies—globalization, virtualization, networking, active customer participation and striving for cost reduction. Their introduction has met some specific expectations regarding payment systems. This was possible by dint of the schemes' unique properties enabling the elimination of intermediaries in the process of value transfer as well as fees charge by those entities. Although those features have driven the virtual currency market development and are still extremely beneficial, with time they seem to gradually diminish in importance.

Functioning of virtual currency schemes increasingly deviates from the initial assumptions of the system. They have been developed to allow peer-to-peer transactions and eliminate intermediaries while maintaining the required level of security. Around the core part of the system—open-source software enabling transfer of value—a lot of various virtual currency service providers have come into being. Their activities not only facilitate performing certain tasks, but very often condition the use of existing scheme's functionalities or modify the system operation. The formed virtual currency market infrastructure is rapidly growing, and the vast majority of scheme participants would not be able to use the scheme capabilities without the service providers' involvement. Those business entities act as intermediaries and charge due fees. It should be considered as a kind of return to the traditional financial system model. Therefore, expectations that virtual currency schemes will marginalize the role of financial institutions are unfounded. Moreover, the schemes will rather not become a dominant payment alternative in the short term, and they are not likely to replace more traditional methods.

Opportunities offered by the technology underlying virtual currency schemes are not, however, limited to the creation of the payment systems. This technology has the potential to disrupt and transform the existing global financial infrastructure and should be seen as a potential generic new way of value transfer in the longer term (Raymaekers 2015). The most ardent proponents of the technology see it as the innovation revolutionizing the whole financial system. A more evolutionary

development assumes a gradual transformation to a common global infrastructure capable of transferring various assets efficiently in a highly standardized way. But owing to the pace of technological progress, the speed of evolution appears to be increasing (Leinonen 2016).

This revolution, or at least accelerated evolution, requires adequate development of the legal framework as the virtual currency market is still an area of legal uncertainty. Since over-regulation may be as harmful as insufficient attention and oversight, legislators should act cautiously, taking into account unique features of virtual currencies and the underlying technology. Enactment of comprehensive regulations, tailored to virtual currencies and blockchaining, harmonized on a global scale, is probably the most effective solution which would provide the greatest benefits. Developing the common definition of virtual currencies that could be used by various bodies for miscellaneous purposes seems to be the right starting point. In further actions, legislators should not focus only on virtual currency schemes as an alternative payment systems or on digital coins as potential investment asset, but rather consider broader implications of the distributed ledger technology. Finding appropriate regulatory constructs, though being an enormous challenge, will reduce emerging risks without stifling innovation. And with time, this innovation could be extended to other sectors, including the public administration, offering in a variety of fields the same “standard” benefits—cost-effectiveness, time saving, security and operation transparency. Given that the technology is rapidly evolving and maturing, bringing smart contracts, it might even lead to development of so innovatory solutions as automated taxation of certain transactions. For now, however, it is a very distant vision.

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The New Governance of ICT Standards in Europe

Morten Kallestrup

Abstract In 2012, the ‘European Multi-Stakeholder Platform on ICT Standardization’ (MSP) was inaugurated as a new platform for dialogue on European ICT standardization. The MSP was comprised of a wide range of members, e.g., representatives of national authorities of EU member-states and European Free Trade Association countries; the European and international ICT standardization bodies and stakeholder organizations representing industry; small- and medium-sized enterprises, consumers, and other stakeholders. The MSP was set up by the European Commission as a new kind of collaborative forum in ICT standardization, partly in response to the otherwise consolidated and formalized European standardization system, which had a clear allocation of competences between exclusively selected public and private actors, yet also inefficiencies due to a rather bureaucratic governance system. This chapter outlines the creation of the MSP as a new ICT-enabled collaborative decision-making system in European ICT standardization. Not due to the application of new technologies, but due to the systemic consequences of the fast development of ICT for political, administrative and regulatory setups of collaboration in Europe. This chapter provides an analysis of the MSP as a new type of forum for deliberation and cooperation in European ICT standardization, and it outlines how the platform facilitates a regulatory dialogue on ICT standardization in Europe. Simultaneously, the MSP plays a significant role in public–private co-creation of regulation and ICT standardization, and it may prove to be a pathbreaker leading to a ‘paradigm shift’ in the governance of European standardization. Finally, certain implications of the MSP are discussed.

M. Kallestrup (✉)

Department of Political Science and Public Management,
University of Southern Denmark, Odense, Denmark
e-mail: kallestrup@sam.sdu.dk

Introduction

Public and private standards have risen in number and gained importance at global level during the last three decades (Büthe and Mattli 2011; Levi-Faur 2011). Standards and technical specifications, including ICT specifications, have furthermore come to play a vital role as regulatory measures, not only in the market place, but also in public regulation (European Commission 2014b; CEBR 2015). In 2012, a new regulation of the European standardization system was adopted by the European Parliament and the European Union (EU) member-states. The adoption and implementation of the new EU regulation (Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardization) was a response to the increasing amount of standards and the increasing importance of standards as regulatory measures, in particular in the field of ICT. Prior to putting forth the proposal for the new regulation, the European Commission had decided that the hitherto principles of the European standardization system—in particular the so-called New Approach method—were to be modified in the field of ICT standardization. The purpose was to create a more flexible ICT standardization system based on the collaboration between public and private standardization actors; including a large and variant cohort of public authorities and private stakeholders of various kinds.

Another change introduced simultaneously with the adoption of the regulation was the establishment of and the allocation of competences to the *European Multi-Stakeholder Platform on ICT Standardization* (MSP). The MSP was set up by the European Commission as a new kind of collaborative forum in ICT standardization. The formal purpose of the MSP was to provide advice to the European Commission on matters related to the implementation of ICT standardization policy.

This chapter outlines the creation of the MSP as a new ICT-enabled collaborative decision-making system in European ICT standardization. Not due to the application of new technologies, but due to the systemic consequences of the fast development of ICT for political, administrative, and regulatory setups of collaboration in Europe. This chapter demonstrates how the new platform facilitates a regulatory dialogue on ICT standardization in Europe and plays a significant role in the public–private co-creation of regulation and ICT standardization.

Theoretically, the analytical approach builds upon the recent literature on transnational private regulation (e.g., Slaughter 2004; Abbott and Snidal 2009; Büthe and Mattli 2011; Cafaggi 2011; Scott et al. 2011; Cafaggi et al. 2013). This literature assumes that private and public actors have become increasingly intertwined in the policy-making and administration of public regulation. It is assumed that the recent growth in transnational private regulation reflects a reallocation of regulatory power from the domestic to the global sphere and redistribution between public and private regulators (Cafaggi 2011). Hence, there seems to be no strict public–private divide in transnational governance, but the relationship between the public and private spheres is intertwined and under transformation: ‘Whilst the ‘myth of the powerless state’ [...] has been effectively challenged, the

nature of state activity is being transformed by international and transnational activity' (Scott et al. 2011, p. 18).

Building on the theoretical insights of this literature, this chapter analyzes a current and distinct case, which encapsulates the development of a shift of power from a hitherto rather bureaucratic and exclusive setup of the classical European standardization system, to a new collaborative forum in the field of ICT standardization. In the assessment of the MSP as a new form of collaborative governance forum, this chapter outlines the recent changes of European standardization legislation and explores the background and potential consequences of the establishment of the MSP. Methodologically, the analysis is based on process-tracing of the establishment of the MSP prior to and during its current lifetime. Empirically, the analysis relies on various documentary data sources, e.g., public legislation (legislative documents), MSP documents and minutes, public available statements in press/in public by relevant actors, as well as interviews with public and private MSP participants and representatives, and participant observation.

This chapter is structured as follows: Firstly, the most recent developments and changes of the European standardization system are outlined, in particular in relation to ICT developments. Secondly, this chapter explores the MSP as a technology-enabled, new kind of collaborative governance system exceeding the hitherto formalized European standardization system. In light of the allocation of governance competences between public and private actors, the implications for the ICT standardization sector are subsumed with a particular focus on the MSP as a forum of regulatory dialogue and co-creation of regulation. Finally, conclusions are derived and further research perspectives outlined.

Standardization and the Growth of ICT

Standards are common and consolidated documents specifying the requirements to which products and services must comply, if the producers want their products to live up to the standard levels defined by private or public authorities in the field. According to the formal EU definition, standards are technical specifications, adopted by a recognized standardization body, for repeated or continuous application, with which compliance is not compulsory (Regulation 1025/2012). Gauch and Blind (2015) specify that standards contain specification documents, rules, and guidelines for product or process development. According to Moore (1979), standards establish technological convergence in different industrial sectors, while standardization (Gauch and Blind 2015; Wettig 2002) inhibits a consistent use of methodologies, procedures, tools, and techniques, specified above the level of individual projects.

In general, standards are of great importance to national and international economies. According to European Commission estimates, standards amount to up to 1% of annual growth in GDP [COM (2011) 311 final]. Other recent economic analyses reach much higher figures, e.g., the recent examination of the economic contribution of standards to the UK economy, which points to a collective

contribution of standards to app. 28% of annual GDP growth (CEBR 2015). The total amount of harmonized European standards have increased from 4 to 20% (>4000) of all European formal standards during the last two decades. During the same period of time, the total number of standards has risen from approximately 4.000 to approximately 25.000. In particular, ICT standardization has gained leverage lately and seems to dominate new standardization initiatives: ICT standards counted for almost two out of three planned mandates for new standards for the period 2010–2013 in the EU (Copenhagen Economics 2013).

ICT standards are important also outside the formalized European standardization system. In a survey exploring the importance of standards and standardization activities of German companies, informal consortia standards were in general considered to be of little importance, *except* for companies active in the ICT sector, for which informal consortia standards were of above-average importance, mainly for ensuring interoperability (Blind et al. 2014). According to Van Eecke et al. (2007), private fora and consortia were responsible for around 60% of the ICT standards produced in 2007, which was far above the percentage in other sectors. Today, this estimate number is assumed to be even higher.

The development of global and transnational standards through standardization processes is often assumed to be apolitical and scientific processes, characterized by the development of technically optimal solutions: Standards are shaped by consensus among enterprises, public authorities, consumers, and trade unions, through a consultation process organized by independent, recognized standardization bodies at international and national levels. Standardization is, in other words, essentially a form of co-regulation or self-regulation (Koop and Lodge 2015). Interested parties come together and agree voluntarily on (usually technical) matters, which permit them to compete in the market more efficiently.

In a comprehensive study of international standardization processes, Büthe and Mattli (2011) deliver a detailed assessment of what they conceptualize as the ‘privatization’ of the production of regulation of the world economy. Büthe and Mattli analyze how standardization organizations make rules and regulations through standardization processes leading to formal standards for products and services, but as opposed to the statements by standardizers themselves; that standardization is an apolitical, consensus-driven scientific process, the authors argue conversely that global standardization: ‘... is rarely about reaching a compromise among different regulatory models and approaches (...) but instead about battles for preeminence of one approach or solution over another’ (Büthe and Mattli 2011, pp. 11–12). Standardization processes are thus ‘politico-like’ processes through which divergent actors with particular interests battle for recognition from public and private authorities in order to obtain market power.

In general, ICT standardization deviates from the common understanding of standardization and standardization processes. ICT is somewhat more of a horizontal nature and has significant influence on several other businesses such as toys, construction, and health. As a consequence, the ICT standardization community has always been in a constant change (ref. Van Eecke et al. 2007). ICT standardization is *sui generis* as there is no stable community relative to other more traditional

PARTICIPANTS										
Standard Development Organisations				Specification providers	Stakeholders			Policy Makers (Public authorities)		
Formal SDOs			Non-formal SDOs		Public interest stakeholders	Industry stakeholders				
International Standardisation bodies	European Standardisation Organisations	National Standardisation Bodies	Consortia (fora)			Solution providers	Solution users	International policy makers	Regional policy makers	National policy makers
ISO, ...	CEN, Cenelec, ETSI	AFNOR, DIN etc.	IETf, IEEE, etc	Oasis, W3C, etc	Normapme, ANEC, ECOS, etc	EICTA, BSA, etc	CECIC, COOR, etc	UN, etc	EU, US, China	EU Member States

Fig. 1 Participants in standardization. *Source* Figure from Van Eecke et al. (2007, p. 5)

sectors such as construction, machinery, or pharmaceuticals. The pervasive nature of ICT requires ICT-related standardization efforts to be taken in any possible economic area. Henceforth, in ICT standardization the standard-developing organizations are generally not independent and formally recognized bodies, but primarily private companies and/or private fora and consortia (see Fig. 1):

ICT is subject to short life-cycles with even shorter exploitation records. Because of the high competitiveness in the sector, the need for upgrades becomes sometimes inevitable even before the product is put on the market. Industry has not waited for the formal standardization bodies to adapt their procedures. They have created their own consortia and fora, where they are not hindered by the public interest requirements of the formal standardization bodies (Van Eecke et al. 2007, p. 15).

Hence, while product standardization has been characterized as consensus-driven consultation processes organized by independent, recognized standardization bodies, ICT standardization has been a field characterized by a constant and much faster change, facilitated by private companies and organizations.

The European Standardization System Prior to 2011

A significant consequence of the adoption of the new European standardization regulation in 2012 was introduction of the legalization and official recognition of privately developed ICT specifications and the sidelining of the hitherto applied ‘New Approach’ principle in Single Market regulatory policy-making. The ‘New Approach’ was a regulatory technique for technical harmonization in EU Single Market regulation of products whereby product legislation is restricted to the requirements necessary to protect the public goals of health and safety (European Commission 2014b). Since 1985, the ‘New Approach’ has been an important policy instrument as it provides for the essential requirements to be combined with technical specifications agreed by stakeholders in the field, usually through harmonized European standards.

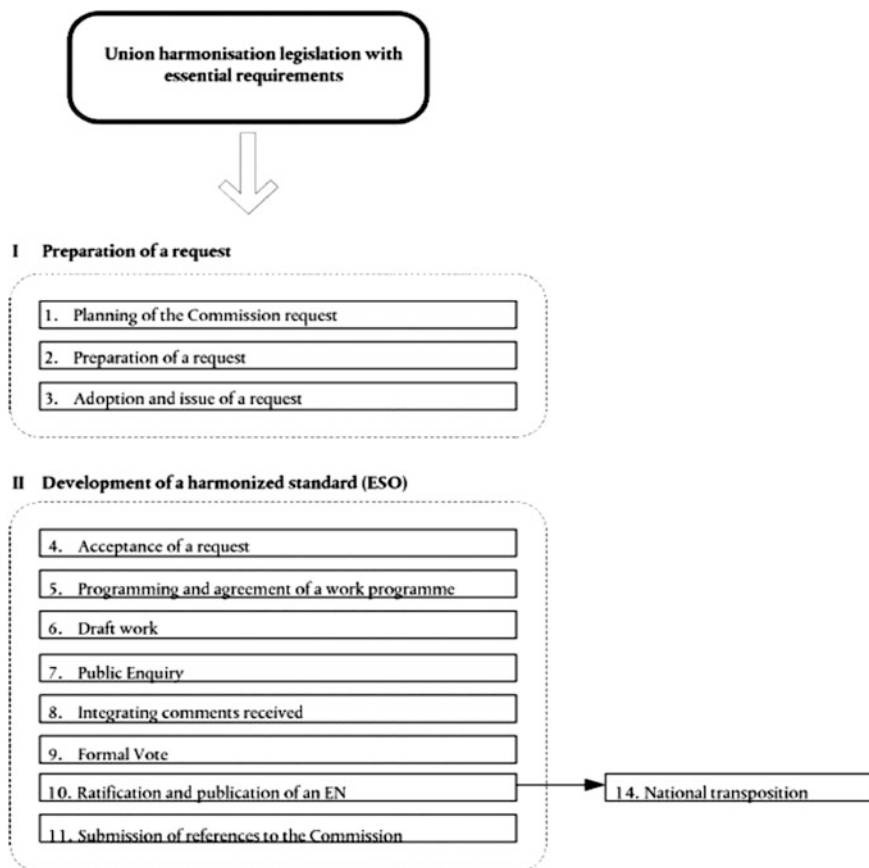


Fig. 2 The development process of a European harmonized standard (EN). *Source* European Commission (2014b, p. 48)

A harmonized European standard is elaborated on the basis of a request from the European Commission to a recognized European Standards Organization (ESO), such as CEN/CENELEC and ETSI, to develop a standard that provides solutions for compliance with a legal provision (see Fig. 2). By definition, a ‘standard’ is a technical specification, adopted by a recognized standardization body, for repeated or continuous application, with which compliance is not compulsory. ‘European standard’ means a standard adopted by an ESO, and ‘harmonized standard’ means a European standard adopted on the basis of a request made by the Commission for the application of Union harmonization legislation (cf. Regulation (EU) No. 1025/2012 of the European Parliament and of the Council of October 25, 2012 on European standardization). This as opposed to private specifications developed by private fora and consortia.

The ‘New Approach’ was introduced because the traditional method, the former ‘Old Approach’ for harmonizing product legislation, was often too slow and unsuitable for several product sectors. The traditional way of harmonizing products was carried out through legislating to oblige certain product types produced in EU to have the same technical specifications. This approach to harmonization of rules consisted of often very highly detailed legislation as it had the objective of meeting the individual requirements of each product category (European Commission 2014b). Manufacturers could manufacture in their own nonstandard way if they wished, but were required to explain how their products met the requirements, if called upon to do so by the authorities of the member-states. A formal request for a harmonized standard provides guidelines, which standards must respect to meet the essential requirements of a ‘New Approach’ directive or another relevant directive. The introduction of the ‘New Approach’ in 1985 provided flexibility into the hitherto legislative process by allowing the harmonization of only the essential requirements and left the definition of technical requirements to the economic actors and by reducing considerably the burden of control by public authorities prior to a product being placed on the market.

However, while formally (*de jure*) voluntary to abide to, European harmonized standards in support of Single Market legislation are *de facto* almost as compulsory as public legislation in itself. If not adopting the standard, the cost of proving conformity with requirements is considerable: ‘In theory, European standards are voluntary. [...] In practice, then, the effect of standards is direct and binding since the costs of difficulty and proving equivalence are enormous’ (Büthe and Mattli 2011, p. 17).

The New European Standardization Regulation in 2012 and the MSP

In June 2011, the European Commission published a package of legislative acts on the regulation of the European standardization system. The package comprised, among others, a communication on a strategic vision for European standardization toward 2020 [COM (2011) 311 final] and a proposal for a regulation on European standardization [COM (2011) 315 final]. The package was a part of the European 2020 strategy [COM (2010) 2020 final], and the proposal for a regulation on European standardization was one of twelve priorities in the Single Market Act I [COM (2011) 206 final]. The regulatory purpose of the proposal for a regulation on European standardization was to simplify the legislation by replacing the three existing legislative acts (directive 98/34 on the notification procedure, decision 1673/2006 regarding financing of European standardization, and decision 87/95 regarding ICT standardization) by one new regulation. Substantially, the purpose was to modernize the formal European standardization system and to strengthen competitiveness of European businesses, as well as to ensure stakeholder participation, transparency, availability, and more efficiency and flexibility in the system [COM (2011) 315 final].

The negotiations of the proposal in the Council of Ministers (The Competitiveness Council) and in the European Parliament (the IMCO committee) took place from June 2011 to May 2012. One of the most controversial elements of the proposal during the negotiations was the introduction of articles 13 and 14 in Chap. IV on ICT technical specifications (Kallestrup 2015). These articles basically provided for that privately developed standards approved by the MSP in accordance with the requirements set out in Annex II of the regulation could be ‘identified’ by the European Commission through EU legislation and hence referenced in public procurements. In other words, privately developed ICT standards, i.e., standards developed by businesses and privately financed fora and consortia outside the established standardization system of publicly recognized ESO’s, could now be recognized by the European Commission and hence referenced in public procurement legislation.

Based on a Commission decision, the MSP was set up in 2011, during the negotiations of the new regulation on European standardization [ref. Commission Decision of 28 November 2011 on setting up the European Multi-Stakeholder Platform on ICT standardization (2011/C 349/04)]. The official purpose of the MSP was to provide advice on matters related to the implementation of ICT standardization policy, including potential future ICT standardization needs in support of legislation, policies, and public procurement; technical specifications for the use in public procurements, developed by global ICT standards developing organizations; and cooperation between ICT Standards Setting Organizations (European Commission 2014a).

The setting up of the MSP was based upon the Commission’s initiatives and vision of a ‘digital society’ as referred to in the Europe 2020 Strategy [COM (2010) 2020 final], the communication on a digital agenda for Europe [COM (2010) 245 final], the industrial policy strategy [COM (2010) 614 final], and the standardization package from 2011 [COM (2011) 311 final; COM (2011) 315 final].

The members of the MSP were ‘global key players in ICT standardization’ (European Commission 2014a). The MSP was composed of up to 67 representatives of national authorities of EU member-states and European Free Trade Association countries; the European and international ICT standardization bodies and stakeholder organizations representing industry; small- and medium-sized enterprises, consumers, and other stakeholders. The distribution of private actors and representatives was, according to the decision, up to 18 private organizations representing industry, small- and medium-sized enterprises, and other societal stakeholders, and up to 14 international private standardization bodies and organizations. In practice, the MSP is composed of 49 members, including 3 observers and 11 member-state representatives from public authorities. The other member-state representatives are from appointed private organizations (European Commission Register of Expert Groups and Other Similar Entities 2016).

The main *de jure* competences of the MSP were to provide guidance to the European Commission on matters related to the implementation of ICT standardization policy, including potential future ICT standardization needs. It was, however, the last part of the competence description that held the most *de facto* power and importance, namely the recommendation of which private technical specifications to approve for referencing in public procurement (see Fig. 3).

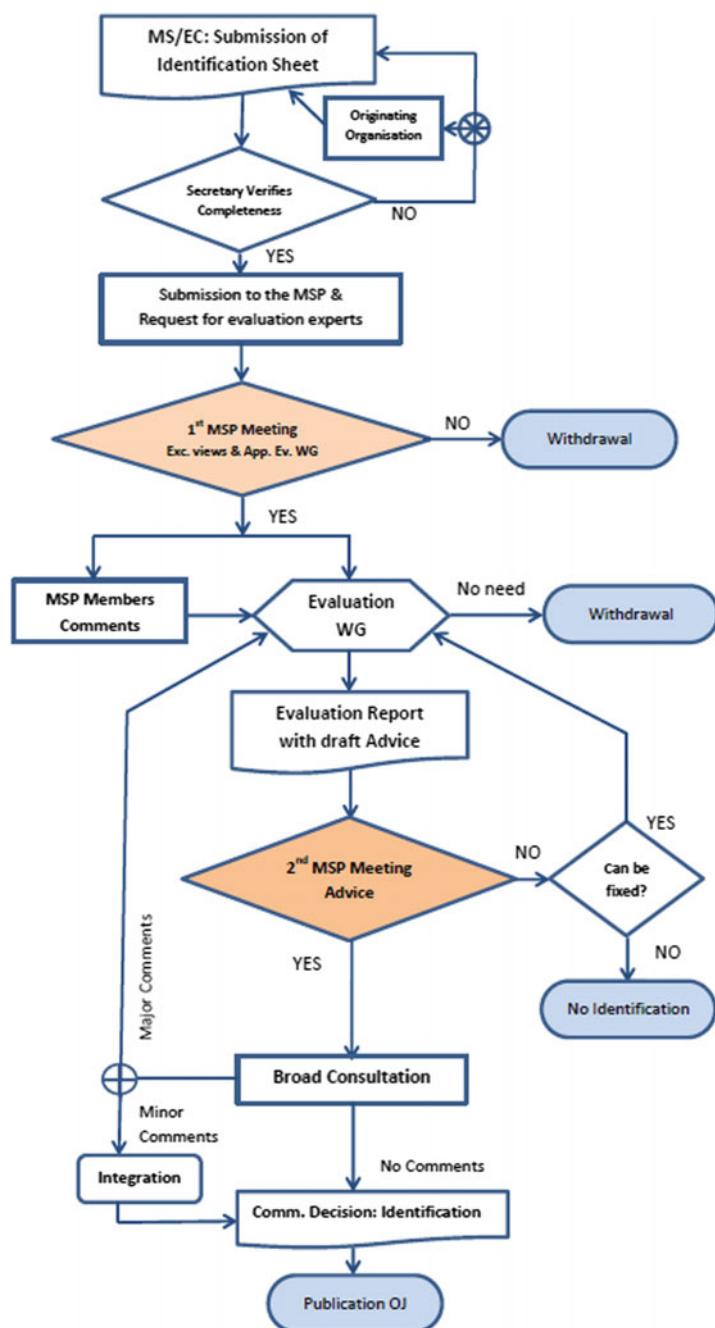


Fig. 3 Flowchart of the MSP identification process of privately developed ‘standards.’
 Source European Commission (2016), ‘Flowchart for identification process’

Throughout its current lifetime, from 2011 to 2016, the MSP did commensurate at 17 meetings in Brussels (European Commission 2016). The meetings during the first two years were primarily assigned to providing agreement on the procedures of the MSP and on administrative matters, in particular the procedure for recognizing the privately developed standards. It was not until mid-2013 that the first privately developed ICT standards were submitted for recognition by the MSP. However, today the European Commission has adopted altogether four Commission decisions identifying 35 privately developed specifications as a response to the MSP's advice.

Formally Recognized Private ICT Standards

On October 17, 2013, the MSP evaluated the first set of six ICT standards submitted for recognition, and on April 3, 2014, the Commission adopted an implementing decision, thus making the first six privately developed standards ('IPv6,' 'LDAPv3,' 'DNSSEC,' 'DKIM,' 'ECMA-402,' and 'W3C XML') eligible for referencing in public procurement [Commission Implementing Decision of 3 April 2014 on the identification of ICT technical specifications eligible for referencing in public procurement (2014/188/EU)]. See Table 1 below for an overview of the specifications.

Six weeks later, on May 22, 2014, the MSP evaluated the Universal Business Language version 2.1 (UBL 2.1) and gave a positive advice. UBL 2.1 is developed by the Organization for the Advancement of Structured Information Standards and is a royalty-free library of standard electronic Extensible Markup Language (XML) business documents. It is designed to plug into existing business, legal, auditing, and records management practices, and to operate within a standard business framework such as ISO 15000 (ebXML) to provide a complete, standards-based infrastructure that can extend the benefits of existing Electronic Data Interchange (EDI) systems to businesses of all sizes. The MSP's evaluation of UBL 2.1 was subsequently submitted to consultation of sectoral experts that also gave a positive advice on its identification. On 31 October, the European Commission recognized UBL 2.1 as eligible for referencing [Commission Implementing Decision of 31 October 2014 on the identification of Universal Business Language version 2.1 for referencing in public procurement (2014/771/EU)].

On October 2, 2014, the MSP evaluated 27 'Integrating the Healthcare Enterprise' (IHE) profiles and gave a positive advice to the European Commission to their identification for referencing in public procurement. The evaluation was subsequently submitted to consultation of the eHealth network, which confirmed the positive advice. On July 28, 2015, the European Commission approved the 27 IHE technical specifications for referencing in public procurement. The 27 IHE profiles are detailed ICT technical specifications developed over a period of 15 years in order to provide interoperability solutions for exchanging or sharing medical data (Commission Decision (EU) 2015/1302 of 28 July 2015 on the identification of 'Integrating the Healthcare Enterprise' profiles for referencing in public procurement).

Table 1 Six ICT specifications recognized on April 3, 2014

Technical specification	Issuer	Description
IPv6	The Internet Engineering Task Force (IETF)	Comprises a set of technical specifications to be applied to a broad range of equipment and services through different sets of ‘Requests for Comments’ (RFCs). It expands the number of available IP addresses, thereby allowing the increasing number of operating systems, web servers, search engines and multimedia sites to interact successfully
LDAPv3	The Internet Engineering Task Force (IETF)	An Internet Protocol issued by for accessing distributed directory services that act in accordance with X.500 data and service models. ‘LDAPv3’ is specified in a series of IETF Standard Track ‘Requests For Comments’ (RFCs) set out in detail in RFC 4510-to-4519 and is able to ensure a high availability with a replication of LDAP servers
DNSSEC	The Internet Engineering Task Force (IETF)	A security extension of the Domain Name System (DNS) that provides data origin authentication and data integrity protection to the Domain Name System (DNS) itself. The ‘DNSSEC’ identification comprises the set of documents that form the core of the DNS security extensions that are needed to support public procurement of the ‘DNSSEC’ block
DKIM	The Internet Engineering Task Force (IETF)	Permits a person, role, or organization that owns the signing domain to claim some responsibility for a message by associating the domain with the message. DKIM separates the question of the identity of the signer of the message from the purported author of the message. Assertion of responsibility is validated through a cryptographic signature and by querying the signer’s domain directly to retrieve the appropriate public key
ECMA-402	Ecma International	A general multi-purpose programming language described by several specifications that adapt to the linguistic and cultural conventions used by different human languages and countries
W3C XML’	The World Wide Web Consortium (W3C)	A package of related data structuring specifications that promote widely scalable sharing of information and computational resources. XML version 1.0 is one of the most widely used formats for sharing structured information today and many other data format specifications are built on extensions of XML

Source Commission Implementing Decision of 3 April 2014 on the identification of ICT technical specifications eligible for referencing in public procurement (2014/188/EU)

Finally, on February 26, 2015, the MSP evaluated the eXtensible Business Reporting Language version 2.1 (XBRL 2.1) and gave it a positive advice. Also in this case, the evaluation was submitted to consultation of sectoral experts that

confirmed the positive advice. On January 28, 2016, the European Commission recognized the XRBL 2.1 as eligible for referencing in public procurement. The XRBL 2.1 is a technical specification for digital business reporting and can be applied to a wide range of business and financial data in order to automate the processes of data collection and to streamline the preparation of business and financial reports for decision-making (Commission Implementing Decision (EU) 2016/120 of 28 January 2016 on the identification of the extensible Business Reporting Language 2.1 for referencing in public procurement).

A New Regulatory Dialogue on ICT Standardization in Europe

Hence, the MSP have matured from a stage of initial consolidation of roles and procedures during the period 2012–2013, and it has now entered a stage of actual recognition of privately developed technical specifications during the period from 2014 to 2016. However, despite the formal recognition of privately developed specifications, MSP participants and other stakeholders of both public and private origin consistently refer to another important fact: It is not so much the procedures of assessing technical specifications and eventually recognizing these for referencing in public procurement that makes the difference, but rather the formal and informal interactions of the many stakeholders in the forum, through which public as well as private stakeholders of many different origins meet, discuss, and eventually settle on which steps to take to move forward in the field. This is also new, not only in ICT standardization, but in the European standardization system as such. According to interview respondents, the MSP as a forum for dialogue is articulated as a significantly positive and stimulating element in the governance of ICT standardization in Europe. While effective in initiating formal recognition of privately developed specifications (a significantly different situation from prior to 2012) as well as being a facilitator of dialogue and cooperation in the field of ICT standardization, the MSP does seem to be a successful change in the governance of the European ICT standardization system. Yet, some consequences and implications of the new governance system ought to be addressed further.

Implications of the Formal Recognition of Privately Developed Standards: A ‘Swift’ Move from Private to Public Regulation?

One substantial change, which may turn out to be a ‘pathbreaking’ element in the European standardization system in the future, was that the new EU standardization regulation in 2012 allowed for a formal recognition of and reference to *privately*

developed ICT specifications as common European standards: ICT specifications developed outside the officially recognized standardization bodies such as CEN, CENELEC, and ETSI—i.e., ICT specifications and standards developed by transnational (global) *private* ICT fora and consortia—could now be officially recognized and referenced in public procurement documents. This was a distinct change of the hitherto regulatory setup of the European standardization system, as it allows the European Commission to make private ‘standards’ eligible for referencing in EU legislation (Regulation 1025/2012; Kallestrup 2015). Basically, the logic is that privately developed standards, i.e., standards developed outside the formally recognized standardization bodies, can become officially recognized and thus referenced in formal legislation.

The main governance forum evaluating which private standards to recognize is the MSP. So far, the European Commission has consequently followed the advice from the MSP with regard to which privately developed ICT specifications to recognize as eligible for referencing in European public procurement. Today, the MSP is *de facto* the forum in which the advice to the European Commission on which private technical specifications to recognize as common European standards is agreed upon. In other words, the traditional regulatory method of the ‘New Approach’ method in the European ICT standardization system, through which standards developed by recognized standardization bodies are or become *de facto* obligatory EU regulation, although formally voluntary, has been sidelined in order to provide formal recognition of privately developed standards through the MSP. Hence, the MSP has as a collaborative forum between public and private actors obtained an important and significant role with regard to ICT standards development and formal recognition in Europe. This has, of course, had considerable consequences for the already established bureaucracy of the ‘New Approach’ actors in general and for the recognized ESO’s in particular.

Yet, what is furthermore important is that private actors often participate in the privately organized development of ICT standards *as well as* in the recognition process through the MSP, i.e., the process of approval of what private regulation to identify as eligible for referencing in formal legislation. The changes of the European standardization legislation in 2012, which introduced articles 13 and 14 in the standardization regulation (Regulation 1025/2012), and the Commission decision of setting up the MSP in 2011, thus provided for a legislative ‘swift’ move opportunity resulting in that privately developed standards (category III in Fig. 4) are swiftly moved into a category of public rules (category I) and recognized as European standards. When identified and recognized, the standards are in essence publicly legitimized international legislation, though the standards were developed through market-based competition among private firms, fora, and consortia. The swift move does take place through the recognition process in the MSP.

Other empirical analyses have shown that day-to-day relationships between established standardization organizations and private fora and consortia are not necessarily as straightforward as indicated by the model above. Simple correlation analysis reveals in general a positive correlation between the indicators representing the activities in private fora and consortia *vis-à-vis* formal standardization

Selection Mechanism	Institutional setting for rule-making		
		public	private
	Nonmarket-based	Public international rule-making (I)	Transnational private standard-setting (ISO, CEN, CENELEC, ETSI, etc.) (IV)
	Market-based	Competing standards developed by public bodies (II)	Competing standards by individual firms, fora and consortia (III)

Fig. 4 Swift moves from private to public regulation by use of Regulation (EU) No 1025/2012 on European Standardization via the MSP. *Source* Büthe and Mattli (2011, p. 19) and own addition

organizations. In-depth studies reveal that most standardization organizations maintain intensive contacts with fora and consortia, which foster complementary relationships on the institutional level (Blind and Gauch 2008). On the single standards level, it is known that several formal standards have a predecessor in the consortia world (Blind and Gauch 2008, p. 512). In a stakeholder survey (Blind et al. 2010), the impacts of formal standards were rated significantly higher and more positively than other types of standards. Furthermore, the cost-related impacts were valued less relevant to stakeholders than various market shaping aspects such as the ability to increase product variety and to develop new global outsourcing opportunities. In a recent survey exploring the importance of standards and standardization activities of German companies, informal consortia standards were in general considered to be of little importance, except for companies active in the ICT sector, for which informal consortia standards were of above-average importance, mainly for ensuring interoperability (Blind et al. 2014).

Altogether, however, it does not challenge the fact that the MSP is a significantly new type of collaborative governance system in the field of European ICT standardization. The MSP may even prove to be a frontrunner, eventually changing our comprehensions of standardization and regulation and the distinction between public and private actors in the production of regulation.

Conclusions

The fast development of an increasing amount of privately developed ‘standards’ in the field of ICT during the first decade of the twenty-first century led the European Commission to take initiatives on the governance of the European ICT standardization system: The adoption of EU Regulation 1025/2012 and the European Commission’s decision to establish the MSP basically changed the regulatory process of European ICT standardization from the ‘New Approach’ method—through which standards become de facto obligatory EU regulation, although formally voluntary standards—to the recognition of privately developed standards through the MSP. This breakthrough was made possible with the adoption of

articles 13 and 14 in the standardization regulation in 2012 and with the setting up of the MSP in 2011. Today, these changes provide for that privately developed ICT standards are now being recognized and integrated into de jure regulation.

The de facto decision on which private standards to formally recognize was allocated by the European Commission to the MSP, which was composed of public authorities as well as private stakeholders ('global leaders') of ICT standardization, i.e., representatives of member-state authorities, private organizations and businesses, private (public) organizations, and other stakeholders. This new collaborative forum in European standardization, comprising both private and public actors, was thus allocated vital competences and an influential role in the decision-making process leading to the official and formal recognition of privately developed ICT standards in Europe.

Evidently, this has resulted in a regulatory governance institution providing a new forum for dialogue where all actors in the ICT sector, of whom many did not communicate before, actually gather to deliberate on various agendas and issues of relevance to the ICT sector as such. Furthermore, the MSP forum constitutes a public-private cooperation resulting in the recognition of common regulation in the field. As mentioned by several participants and respondents, the formal and informal interactions of the many stakeholders in the forum, where public authorities as well as private stakeholders of many different origins meet, discuss, and eventually settle on which steps to take to move forward in the field, is a unique feature in the governance of European ICT standardization.

The theoretical literature on transnational regulation has recently referred to *regulatory intermediaries* as a new type of regulatory actors with the capacity to affect, control, and monitor relations between 'rule-makers' and 'rule-takers' via, among others, their interpretations of standards. Regulatory intermediaries comprise public as well as private actors. As outlined above, the MSP has been allocated formal competences to identify on behalf of the European Commission which privately developed specifications are eligible for formal EU recognition. Furthermore, the MSP has an advisory role to the European Commission on priority-setting in ICT standardization policy, and the constellation of members of the MSP is comprised of both public and private actors representing international and national bodies as well as stakeholders of various kinds. The European Commission is the formal *rule-maker* in this specific setting, and the sub-EU levels of public government (national, regional, local authorities) providing public procurement, as well as private actors delivering services and products, are the *rule-takers*. Henceforth, the MSP may play the role as that of a regulatory intermediary. The unique characteristic of the MSP is that its existence has been enabled by the fast development of ICT. This ICT-enabled governance forum facilitates a collaborative dialogue between public and private actors through open and collective evaluations of privately developed standards and specifications, with the purpose of assessing which should be recognized as eligible for formal reference in EU legislation and public procurement.

Finally, the adoption of the standardization regulation in 2012, which introduced a legislative opportunity to formally recognize privately developed ICT standards,

is a predominant change away from the ‘New Approach’ regulatory method to the formal recognition of privately developed standards through the MSP. The case analysis above revealed that the forum evaluating which private standards to recognize is the MSP. Private actors participate in the development of privately developed ICT standards, but simultaneously they participate in the recognition process within the MSP and hence in the process of formal approval of what private regulation to include in public legislation. The MSP is de facto the forum in which formal recognition of private technical specifications as common European standards takes place. It is thus a vital decision-maker in Single Market regulatory policy-making of European ICT standardization. To specify, standards produced in category III of the Bütte and Mattli (2011) typology (ref. Fig. 4) are swiftly moved into category I and then recognized as publicly legitimized international legislation, even though the standards have been developed through market-based competition among private firms and consortia.

In future research, this chapter could be supplemented by research with a comparative perspective, either through a comparison with other policy sectors in the EU and/or in comparison with similar systems in other countries, e.g., the USA. We have already seen other examples of multi-stakeholder governance platforms; with the international multi-stakeholder model of Internet governance—the Internet Governance Forum—being the most prominent. Future research may also explore and discuss the nature of the related democratic and legitimacy challenges; whether regulatory standard setting and transnational regulation, which in essence are developed and produced by transnational private actors, actually serve the public interest or captured (private) interests? Yet, the establishment of the MSP and the roles and competences allocated to this new collaborative governance forum in European ICT standardization may prove to be a ‘pathbreaker,’ not only in the governance of European ICT standardization, but in the longer run in the governance of the European standardization system as such.

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Part III

Crowd Sourcing Governance

Social Innovation in Practice: Opportunities for Citizens and Governments

Alina Ostling

Abstract One of the emerging innovations in the public sector is social innovation. National governments, international organisations and the civil society around the world are experimenting with new models for producing and monitoring public services not only to bring down the costs and increase efficiency, but also to improve transparency. At the core of social innovation is civic engagement and novel types of interactions between government and citizens. This chapter examines if and when social innovation improves transparency and civic participation. The author has carried out four case studies of crowdsourcing in health and education sectors in Asia and Europe, which are analysed by using Elinor Ostrom's theory on co-production. The findings suggest that social innovation can, under certain conditions, open up government and facilitate the monitoring of service delivery. Conditions that favour these processes are not only complementarity of government and the civil society actions, established and formalised commitments, and financial and practical incentives to work in synergy, as suggested by Ostrom, but also strong organisational tactics, extensive community networks and skilled volunteers at the local level working for the civil society organisations behind social innovations.

Introduction

Public institutions are constrained by regulations and ingrained bureaucratic processes that are not particularly open to disruptive innovations. However, recent experiences show that there are some notable exceptions. One of the emerging innovations in the public sector is *social innovation*. Social innovations are implemented in response to both social demands and budgetary constraints of governments. They are also becoming increasingly important for overcoming barriers to sustainable growth, such as climate and demographic changes, and are

A. Ostling (✉)

Centre for Media Pluralism and Media Freedom (CMPF), European University Institute,
Florence, Italy

e-mail: alina.ostling@eui.eu

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117

believed to favour human relationships and wellbeing (Mulgan 2007, p. 5). Various national governments, the European Union, international bodies and aid donors have realised the potential of social innovation and are supporting the development of new models for public services (BEPA 2010).

At the core of the social innovation concept are novel types of interactions between the government, the private sector, the civil society and citizens. This opens up to a broader and more intricate notion of government and of citizenship. The government is no longer the sole producer of services but increasingly acts as the coordinator and enabler of joint efforts of different groups and individuals (Alford 1998, p. 135; Bason 2010). At the same time, citizens are not only voters and deliberators but can also contribute to the production and monitoring of public services (Alford 1998; Ostrom 1996). In present times, these social innovation processes are often supported and enabled by information and communication technology (ICT) tools for communication, data collection and information sharing.

Social innovation is interpreted and defined in many different ways in the literature. Considering that this chapter is based on real-life cases of social innovations, the definition used can be situated within “the framework of practice and intention (...) focused on addressing social challenges for the benefit of society” (Anderson et al. 2015, p. 6). The definition used is also in line of the concept developed by the Bureau of European Policy Advisers (BEPA),¹ which defines social innovations as new ideas (products, services and models) that meet social needs and create new social relationships or collaborations. “The process of social interactions between individuals undertaken to reach certain outcomes is participative, involves a number of actors and stakeholders who have a vested interest in solving a social problem, and empowers the beneficiaries” (BEPA 2010, p. 9–10). What BEPA refers to above seems to be the ideal scenario of outcomes that social innovations can achieve. However, the BEPA definition grasps the social dimension of the phenomenon and is useful for understanding the normative aim of social innovations. In line with the BEPA definition, the case studies examined in this chapter represent novel processes of social interactions, which aim at involving citizens in the monitoring of public services in order to improve these services.

Social innovation is also very close to the notion of “co-production”, as conceptualised by Elinor Ostrom. Ostrom defines co-production as a “process through which inputs used to produce a good or service are contributed by individuals who are not “in” the same organization” (Ostrom 1996, p. 1073). According to Ostrom, public goods and services can be produced by both the government and by citizens, and in some cases, the active participation of citizens even becomes essential for producing a service (Ostrom 1996, p. 1079). According to Ostrom, for co-production to be advantageous a number of conditions have to be fulfilled, including (i) complementarity, when “Each has something the other needs”;

¹BEPA has now been renamed to the European Political Strategy Centre (EPSC), which is a department of the European Commission.

(ii) commitment, which benefit from clear and enforceable contracts between the stakeholders; and (iii) incentives for inputs from government and citizens (Ostrom 1996, p. 1082).² This chapter will use Ostrom's conditions for advantageous co-production to understand the four social innovation cases examined and to explain some of the outcomes that these have achieved.

In addition to potentials advantages of social innovation such as cost-saving, efficiency and civic rewards, social innovation can also bring about democratic opportunities for increased transparency and participation of citizens. Transparency initiatives in the field of service delivery have already been subject to extensive research³ and have been defined as “attempts (by states or citizens) to place information or processes that were previously opaque in the public domain, accessible for use by citizen groups, providers or policy-makers” (Joshi 2013, p. 2). Access to information is widely assumed to be a critical factor in improving the quality of key public services, such as health and education (Kosack and Fung 2014; McGee and Gaventa 2010). Transparency and accountability have been in focus of the debates on service delivery for over a decade, ever since the World Development Report of 2004 attributed failures in service delivery to malfunctions in the traditional accountability relationships and argued for increased participation of the poor in monitoring and disciplining service providers (World Bank 2004; Joshi 2013, p. 1). However, while participation is claimed to increase transparency and service delivery, it is not always clear what is meant with participation, and who is included or excluded from that participation. This chapter will therefore examine under which conditions the social monitoring projects under study have effects on transparency and also assess the extent and depth of participation that these achieve.

The chapter starts with a discussion of four cases of social innovation in health and education sectors in Asia and Europe, which are based on desk research and interviews carried out by the author. The following section presents the outcomes of the four cases in terms of participation and transparency and attempts to explain them with the help of theory, in particular by using Elinor Ostrom's work on co-production. Moreover, Sections “[Opportunities Arising Through Social Innovations](#)” and “[Conclusions](#)” identify some of the conditions that help to achieve results and discuss the implications of social innovation for transparency and the quality of participation.

²Ostrom (1996, p. 1082) also discusses another condition called “legal options” for both government and citizens, meaning that there are few restriction to production options, e.g. lack of authorisations for public teachers to change the educational curriculum to make it more relevant to students, or parents that need permissions to be able to build school latrines on their own initiative. However, these “legal options” fall outside of the scope of this paper since the project staff interviewed never mentioned any legal restrictions to their or their volunteers' activities.

³See e.g. the literature review by Joshi (2013). <https://www.ids.ac.uk/files/dmfile/IETAAnnex1ServicedeliveryFinal28Oct2010.pdf>.

Table 1 Case study categorisation

	Check my school	Cek Sekolah Ku	What's the doctor like?	Aybolit
	<i>Philippines</i>	<i>Indonesia</i>	<i>Serbia</i>	<i>Ukraine</i>
Region	Asia	Asia	Europe	Europe
Sector	Education	Education	Health	Health
Prototype	x		x	
Replication		x		x

Social Innovation in Practice

Methodology

The author has carried out four case studies that represent innovative models for monitoring and supporting service delivery across different countries and in two public service sectors (health and education). The cases were studied in the framework of an issue paper drafted for the U4 Anti-Corruption Resource Centre (Chr. Michelsen Institute) between 2014 and 2015 (Ostling forthcoming). The cases are based on desk research that draws on published and unpublished literature, project documentation and Skype interviews with members of the four project teams.

As shown in Table 1, both the cases in the education sector and the cases in the health sector have been modelled after each other and are implemented in the same regions (Asia and Europe, respectively). “Cek Sekolah Ku” in Indonesia used “Check my school” in the Philippines as prototype, while “Aybolit” in Ukraine has been replicated mainly according to the model of “What’s the doctor like?” in Serbia. These projects are all lead by civil society organisations and actively use ICTs (i.e. Internet and mobile phones).

The cases were selected based on their similarities. This case study framework is in line with the “Most Similar Systems Design” (MSSD).⁴ All four projects are carried out by established civil society organisations with a track record in the field of transparency and involve both volunteers and ordinary citizens in their implementation. They aim at improving the quality of public services, and all use ICTs tools to reach their target audiences, as well as to gather, analyse and visualise data. A comparative analysis of the four projects was carried out in order to examine the results of the projects on two key democratic dimensions: transparency and public participation.

The four projects examined carry out something Fung et al. (2013) call “social monitoring”, a phenomenon that is becoming part of the political landscape even in developing countries (Fung et al. 2013; UNDP 2011). The projects collect information about the state of public services and detect strengths and weaknesses in

⁴MSSD starts out with similar variables between subjects and tries to understand why the outcome is different between the subjects.

service delivery. In most cases, the data collected is visualised online, e.g. on maps displayed on the project platforms. Social monitoring helps organised civil society groups to bring public service problems to the attention of the government and of the general public. This type of projects relies on crowdsourcing, which means that functions that are normally performed by experts are outsourced to the broader public, e.g. by asking for information, evidence or ideas on a volunteer basis. Even if each participant only makes a small contribution, together the “crowd” can undertake monitoring tasks that would otherwise require considerable time and organisational efforts (Fung et al. 2013). In this process, participants can learn important civic skills, such as collaboration and information sharing, and contribute to holding governments to account.

Overview of the Four Cases

This section gives a brief overview of the four case studies, describing the organisations in charge of the projects, the time of launch, the aim of the projects and their methods of working.

Philippines: Check my school

“Check my school”—<http://www.checkmyschool.org>—was designed and initiated by the non-profit foundation “Affiliated Network for Social Accountability in East Asia and the Pacific” (ANSA-EAP) in 2011.⁵ ANSA-EAP is organised as a regional network of civil society advocates engaged in various forms of partnerships with government and communities. The aim of the Check my school project is to promote transparency and social accountability in the education sector by tracking the provision of services in public schools. The project uses both official school data and self-collected data to diagnose the condition of services in the school. The data collection phase involves visits to schools to access records on enrolment, classrooms, seats, textbooks, budget, achievement test results and other relevant data. The project has attracted worldwide attention and has been replicated in Indonesia, Moldova, Cambodia, Mongolia and Kenya (Shkabatur 2012, p. vii).

Indonesia: Cek Sekolah Ku

Transparency International Indonesia has replicated the Philippine Check my school project in Indonesia. The project “Cek Sekolah Ku”, which stands for “Check my school” in Indonesian, was launched in October 2013 and aims at improving participatory monitoring of school performance. The project addresses three specific challenges: (1) transparency and accountability in the use of education

⁵ANSA-EAP is a non-profit foundation hosted by the “Ateneo School of Government” at the Ateneo de Manila University.

funds; (2) weak participation of citizen in supervision and development of educational services; and (3) settlement of education and school management issues through an appropriate complaint handling mechanism (Transparency International Indonesia undated).

Cek Sekolah Ku has a portal—<http://ceksekolahku.or.id>—that allows the general public to access basic data on schools (i.e. location, number of teachers, and number of students) and on school finances (Transparency International Indonesia undated). The Indonesian Ministry of Education and Culture provides the official baseline data, and the project carries out the validation of the data in schools. The portal also provides a complaint handling mechanism that allows users to submit complaints and report corruption in schools. The complaints are forwarded to the relevant school or to the local Department of Education, depending on the substance of the complaint.

Serbia: What's the doctor like?

The project “What's the doctor like?” was launched in November 2012 by the civil society organisation “Serbia on the move”. The project aims at promoting better health care and reduce corruption in Serbia. Serbia has a publicly financed health system that should assure universal medical coverage for everyone but is distressed by substandard services and bribe requests (Vila 2013; Djurovic 2012). At the core of the project is a website—www.kakavjedoktor.org—that gives patients an opportunity to evaluate their relationship with health care providers and to report cases of corruption to the relevant authorities online or through a SMS function.

Ukraine: Aybolit

The project Aybolit⁶ got its inspiration from “What's the doctor like?” in Serbia and was a winning app at the International Anti-Corruption Conference (IACC) Hackathon in 2012.⁷ Transparency International Ukraine was in charge of the project implementation. The online platform was launched in May 2013 and only operated for circa six months. Similarly to the Serbian project, Aybolit wanted to encourage ethically and legally correct behaviour among doctors and hospitals. Instead of adopting a confrontational attitude towards the government and the medical establishment, the project sought to encourage positive behaviour in the health sector. In practice, this was to result in an index of the best health providers in Ukraine. On the Aybolit platform, patients could comment doctors' performance and ethical behaviour. The platform kept track of user comments and showed them on a map. The project ended mainly because it lacked both an efficient organisational structure and civil society partners on the ground.

⁶The Aybolit platform link used to be: <http://www.aybolit.in.ua/>. It is no longer functioning.

⁷<http://15iacc.org/get-involved/iacc-hackathon/winning-app/>.

Opportunities Arising Through Social Innovations

Presently, a vast experimentation with various social innovations is happening, and many of these are facilitated by novel techniques such as crowdsourcing and new digital tools. Two key democratic opportunities arising with social innovations are discussed in this chapter, namely increased inclusion of people in the process of monitoring and delivery of public services and their role in making governments more transparent. This section focuses particularly on achievements by the four social innovation cases in terms of the level and quality of participation, and transparency, and explores the conditions that facilitate these achievements.

Inclusion: The Scale and Quality

In today's wired world, citizens are able to easily connect with each other, contact government and obtain a large variety of information. New ICT tools facilitate a quick connection of people and their mobilisation for common purposes (Couldry 2015). At the same time, sceptics note that only a minority engage and that the well-resourced people still dominate participatory initiatives, especially online. The majority is left out because of factors such as class, gender, as well as civic and digital skills (Coleman and Freelon 2015; Couldry 2015; Dahlgren 2015). Recent studies indicate that also crowdsourcing initiatives are affected by lack of representativeness (Aitamurto and Landemore 2016). This can lead to unintended impact, as well as potential problems of representation and legitimacy. If certain (elite) groups in society dominate civic engagement platforms, these groups acquire a stronger voice with respect to other, less influential groups, and could be skewing how the government is responding in terms of policy or delivery of services (Rumbul 2015).

To analyse the opportunities of inclusion offered by social innovations, it is useful to distinguish between the quantity and quality of inclusion. The quantity is here defined as the number of participants, while the quality of is understood as involvement of different groups in society (i.e. demographic variation), and the depth of involvement and influence on final results. The scale of social innovations is important for including a larger number of people. Who is participating is important to avoid excluding any affected groups in society. Empirical studies show that the more demanding forms of participation often have less diverse participants, e.g. in terms of ethnic background and income (Gilman 2015). Moreover, knowing the demographics is particularly important in projects that rely on ICTs since their use requires additional resources, including financial means to access the necessary hardware (e.g. mobile phone or computer) and the Internet, as well as possession of digital skills. Digital divides in many countries and across different socio-economic groups within countries still make it difficult for many people across the world to use ICTs effectively.

The depth of participation matters since superficial involvement (e.g. simply informing people about problems) is generally not sufficient for achieving better accountability, while deeper levels of participation, where people are empowered to take the final decision on the issue at hand, can have real impact on government and service delivery. The following sections explore aspects of inclusion by looking at real-life cases and by examining factors that help to improve the quantity and the quality of inclusion in social innovation projects.

Scale

In the four cases, examined people can participate in different ways (e.g. by consulting information on school and health services online and submit reports about irregularities and corruption) and through different channels (i.e. websites, social media, SMS and offline). All of the projects (except Aybolit that operated only online) provide both offline and online participation channels.⁸ Complementing online channels with and offline entry points is positive for inclusiveness since the offline approach, which relies on personal interaction, has the lowest barrier of access in terms of cost, literacy and hardware, while the mobile and Internet-based tools are usually less inclusive (Gigler et al. 2014; Heacock and Sasaki 2011). One of the projects, Cek Sekolah Ku, has also found a way around the digital barrier by letting volunteers act as “digital bridges” and report school issues on behalf of the local population without Internet access.

Overall, the scale of participation varies across the projects (see Table 2). Check my school shows the largest number of website visitors, while What’s the doctor like? has the highest number of participants considering online reporting (through SMS and website). Only two of the projects allow offline reporting, and this option was not used very widely. The few offline reports submitted to the Indonesian Cek Sekolah Ku and the Philippine Check my school projects were mainly coming from regular community volunteers engaged in the school data validation process. The low levels of reporting could be due to the extent of commitment and resources needed to engage. Compared to consulting a website, the reporting requires a much higher effort and motivation to engage, and the online reporting has a particularly high barrier of access for people that are not Internet savvy.

A closer analysis shows that regular project volunteers account for most of the project participants and constitute the cornerstone of participation in the majority of the cases. “Check my school” in the Philippines has involved circa 700 volunteers over the course of the project and “What’s the doctor like?” in Serbia about 250, most of whom have remained active also beyond specific campaigns. “Check my school” relies heavily on unpaid coordinators, who establish contact with schools and mobilise hundreds of volunteers from the local communities. Many of these coordinators belong to organised citizen groups and possess strong ICT and advocacy skills. The project teams affirm that the volunteers are very important in

⁸The project What’s the doctor like? does not allow offline reporting by citizens but offers them the opportunity to become (offline) volunteers.

Table 2 Levels of participation across the projects

	Check my school	Cek Sekolah Ku	What's the doctor like?	Aybolit
SMS reports	12	37	1,000 [*]	N/A
Online reports	520	4	13,000 ^{**}	limited
Website visitors	163,505	2,684	30,000 ^{**}	limited
Offline reports	limited ^a	65	N/A	N/A

The figures in the table are based on the project documentation and on interviews with the project teams. See Ostling (forthcoming) for further details and references

^aThe author did not manage to obtain a concrete number of offline reports received by the project, only the statement that their amount was limited

Legend ^{*} Approximate number in a year. ^{**} Approximate number in the first 10 days of the original website. N/A means that this method was not relevant to the specific project

building participatory capacity on the ground and work as drivers for increased civic engagement in local communities.

The volunteer basis of the Serbian “What’s the doctor like?” has been built through an efficient community engagement strategy. Many of the volunteers are involved on a daily basis, and their sustained involvement is ascribed to the strong organisational structure built up by the project. The project has put in place a campaign strategy based on the renowned “snowflake model”,⁹ also used to organise Barack Obama’s successful presidential campaign in 2008. ICTs were a key component that helped to reduce the organisational costs in this process. The project has involved circa 40 team leaders and 250 activists, who were organised with relations to one another in the shape of a snowflake. The main project campaign was carried out in three stages (Vila 2013):

1. A call was posted on Facebook looking for people “interested in fighting corruption in healthcare” and invited them to participate in a one-day workshop;
2. Workshops were held in five cities across Serbia to help people develop a personal story about why they care about the issue of corruption. Out of 200 participants, they recruited 50 “organisers” with the best stories because they felt they would be the most suitable to engage other citizens for the cause. The organisers were trained in team creation and management and got coached in development of a strategy for action.
3. Each organiser had a team of 10 people in a snowflake shape. The teams were responsible for mobilising people in their region to use the project website and each team member had his/her own responsibilities (e.g. marketing, cooperation with institutions and website development).

The volunteers have conducted numerous local actions that targeted citizens interested in better health care and encouraged them to engage on the project website. Moreover, the snowflake model was complemented by a media campaign

⁹The ‘snowflake’ model was adopted from the work of Marshall Ganz, credited with devising the grassroots-organizing model for Barack Obama’s 2008 presidential campaign.

targeted at citizens and civic groups. During the campaign, the project was promoted in several national and local TV programmes, the project team gave many interviews and broadcasted a video called “Loudly for health care!” that invited citizens to join the campaign (Serbia on the move, 2012). These actions contributed to the high online visibility of “What’s the doctor like?” platform, which received circa 13,000 ratings of medical staff and 30,000 website visitors already in the first 10 days after project launch. This crowdsourcing effort, which has resulted in the rating of a significant share of medical staff in Serbia, including circa 5000 out of 22,696 doctors (Babovic 2013), has contributed to improved transparency of the healthcare situation in Serbia.

The importance of organisational and networking capacities for the scale of public participation is also confirmed by the case that achieved less participation, Aybolit. The organisational structure of the project had several gaps, including insufficient human resources. Having a very limited budget, the project lacked dedicated staff. Most of the people working on the project were volunteers and did not have precise job descriptions. One of the project team members emphasised that this staff gap became clear when they got more familiar with the prototype “What’s the doctor like?” in Serbia, which had a full-fledged team dedicated to its implementation. Moreover, in its brief lifetime, the project did not carry out enough activities to involve communities on the ground and to motivate citizens to engage. According to the interviewees, to achieve any effect a community mobilisation should have been carried out at a very early stage of the project and with support of CSOs experienced in grassroots rollout, akin to the one implemented by the Serbian “What’s the doctor like?”. All these factors limited the reach-out of the project to potential participants. Finally, the Euromaidan protests that started at the end of 2013 in Ukraine and the following shift in priorities put a full stop to the project.

Quality of inclusion

In addition to examining the share number of participants, it is important to consider the quality of participation in terms of demographics of participants and the depth of involvement. Surprisingly, the four projects had rather vaguely defined target

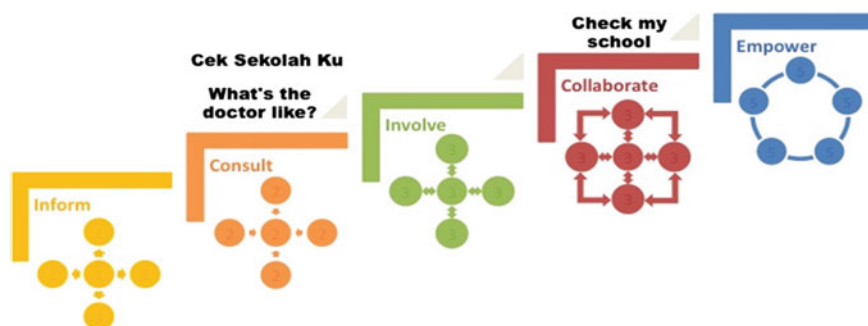


Fig. 1 IAP2 participation spectrum (from low to high levels of participation). *Source* IAP2 spectrum of Public Participation (2007)

audiences. The Serbian project targeted citizens interested in the improvement of health care, in particular parents of young children. Given the central role of digital tools and platforms, all of the projects focused specifically on groups of population that have Internet access, e.g. Aybolit was addressing tech and social media savvy youth, and Cek Sekolah Ku was reaching out to pilot districts with higher than average Internet penetration rates. However, none of the projects kept track of the demographics of their users. This means that the projects do not know whom exactly they engage, and whether their users are representing the population affected by poor service delivery.

In addition to knowing who the participants are, the depth of participation is crucial for truly empowering those who participate. To examine the depth of participation, the four projects have tentatively been placed in the spectrum of International Association for Public Participation (IAP2). The IAP2 spectrum illustrated in Fig. 1 covers different levels of public participation ranging from low participation, where people are simply informed about the relevant problems and alternative solutions (e.g. on websites) to high, where they are empowered to take the final decision on the issue at hand (e.g. through citizen juries or referendums).

As shown in Fig. 1, none of the examined projects reach the highest level of the scale “empower”. However, Check my school in the Philippines could be placed on the next-highest level, “collaborate”, considering that the project identifies and implements solutions together with citizens. Check my school has successfully mobilised the local community to repair school facilities and convinced alumni, parents and teachers associations to contribute with resources in order to solve school-related issues. What’s the doctor like? in Serbia and Cek Sekolah Ku in Indonesia fit on the level of “consult” given that both provide information that allow citizens to understand problems related to health or education services and ask them for feedback (i.e. in the form of reports about problems or positive experiences). The case of Aybolit falls outside of the spectrum. It cannot be placed even at the lowest participation level (“inform”), since the project website did not gather enough reports about doctors to be able to provide the public with objective information.

In sum, all four projects carry out activities aimed at improving civic capacities, such as providing information in a user-friendly format on their online platforms and facilitating deliberation between different stakeholders through consultation meetings in schools. They also act as facilitators between government and citizens, e.g. by aggregating and presenting citizens’ input in a digestible format to public officials. At the same time, the participation in the projects happens at a rather superficial level. As illustrated by the IAP2 spectrum, two out of four projects remain on a low participation level (“consult”), while one remains outside of the spectrum altogether.

Monitoring for Transparency

This section uses Ostrom's theory on co-production in order to explain some of the patterns in the four social monitoring cases. Ostrom asserts that for co-production to be advantageous a number of conditions has to be fulfilled, including (i) complementarity of inputs; (ii) commitment by government and citizens; and (iii) incentives for inputs from both parties (Ostrom 1996, p. 1082).¹⁰

Complementarity means that output is best achieved by a combination of inputs from both parties (Ostrom, p. 1080). Among the four cases examined, the Philippine Check my school best exemplifies the complementarity of government and organised citizens, as well as the type of positive impact on transparency that social monitoring can achieve. The project has established a close cooperation with the Department of Education (DepEd) in the Philippines and therefore gets access to essential data on public schools held by DepEd. To complement this data, the Check my school collects additional data through crowdsourcing methods, whereby project volunteers and ordinary citizens report about issues such as enrolment levels, classroom conditions, textbooks available and budgets. The project analyses these two complementary dataset in order to diagnose the condition of services in schools and to detect problems.

The positive achievements of Check my school also depend on a favourable government context and on the project's alignment with the government's reform agenda

As a further incentive for inputs and collaboration by the government, the project team has involved DepEd officials in the processes of project design, planning and implementation right from the start. The Check my school team reports that this has generated feelings of ownership and trust among the government partners (Parafina 2014). Also in the case of the Indonesian Cek Sekolah Ku project, established collaboration with the government has played an important role. The local government in Indonesian pilot districts has responded positively to the project mainly due to previous close relationship with Transparency International Indonesia (the organisation running the project). Moreover, the project team reports that over the course of the project, the local officials have become more open about conditions in schools and more prone to cooperate, e.g. by agreeing to follow-up on complaints received through the Cek Sekolah Ku project.

Also the Philippine project has elaborated a thorough process to follow-up detected school issues, whereby they try to find incentives for government counterparts to collaborate. The project team contacts each government office concerned

¹⁰Ostrom (1996, p. 1082) also discusses another condition called "legal options" for both government and citizens, meaning that there are few restriction to production options, e.g. lack of authorisations for public teachers to change the educational curriculum to make it more relevant to students, or parents that need permissions to be able to build school latrines on their own initiative. However, these "legal options" fall outside of the scope of this paper since the project staff interviewed never mentioned any legal restrictions to their or their volunteers' activities.

by the detected school issues and organises meetings with key stakeholders at the local level to try to jointly solve issues. The project has established relations with school managements across the country with the help of DepEd and has wide-reaching volunteer networks on the ground that helps it to reach-out to involved communities. Through stakeholder meetings, Check my school provides a venue to discuss problems and mediates between different governmental and non-governmental stakeholders. The school data are used as a factual basis for discussion during meetings and for officially raising issues with DepEd and local government officials.¹¹

Check my school did not achieve its results over night. It is the longest running project among the four cases. Moreover, when starting the project, the organisation behind the project, ANSA-EAP, already had an established relationship with the government. Check my school was launched by signing a memorandum of agreement (MoA) with the DepEd, which defined the project as “a joint social accountability undertaking of the DepEd and the ANSA-EAP” (Shkabatur 2012, p. 12). This type of formalised commitment is in line with what Ostrom recommends as one of the conditions for successful co-production.

Conclusions

Presently, a vast experimentation with social innovations is happening around the world. This book chapter discussed two key democratic opportunities arising with social innovations, namely increased inclusion of people in the process of monitoring and delivery of public services, and their role in making governments more transparent.

In terms of inclusiveness of social innovations, the case studies reveal that similar cases in the fields of education and health have different results regarding the scale and quality of participation. The projects with the strongest organisational tactics (Check my school in the Philippines and What’s the doctor like? in Serbia) have reached the highest levels of participation by involving hundreds of volunteers and by crowdsourcing thousands of participants online. The organisations behind these two projects relied on extensive community networks on the ground and run well-organised campaigns together with volunteers skilled in advocacy and familiar with ICT tools who reached out to citizens. In contrast, the project Aybolit in Ukraine failed in attracting participants mainly because it lacked both an efficient organisational structure and civil society partners on the ground. The case studies also reveal that none of the four projects has a clearly defined target audience or keeps track of the demographics of their users. This constitutes a risk in terms of excluding groups with limited financial resources, civic or digital skills, or marginalised groups, which tend to be affected most by deficiencies in public services, while also participating less in similar initiatives.

¹¹<http://www.checkmyschool.org/what-cms-does/>.

The most successful of the four cases in terms of participation and effects on transparency fulfil Ostrom's conditions for advantageous co-production of services by government and citizens: complementarity, commitment and incentives for inputs from government and citizens. The Check my school project in the Philippines complements the government's reform agenda in the field of education, and the government has financial and practical incentives to cooperate with the project. The collaboration with the project helps to complement and improve the schools data of the government at no cost. The case studies also show that established relations and formalised commitments between the organisations running the projects and the government help to build trust and provide incentives for collaboration.

To sum up, the analysis indicates that social innovations can open up public institutions and bureaucratic processes and facilitate the monitoring of service delivery. At the core of the cases examined are innovative types of interactions between the government, civil society organisations and the crowd of citizens, which are supported by ICT tools for communication, data collection and information sharing. These interactions are more likely to improve public services if the inputs by government and citizens compliment each other, if the parties are committed and if they have incentives for working in synergy. When this happens, new opportunities for democracy are arising, in particular terms of transparency of information and public participation.

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Going Beyond Bureaucracy Through Gamification: Innovation Labs and Citizen Engagement in the Case of “Mapaton” in Mexico City

Rodrigo Sandoval-Almazan, J. Ramon Gil-Garcia
and David Valle-Cruz

Abstract Public managers face new challenges to their decision making that extend beyond their current knowledge and prior experiences. To answer these challenges, they need help from actors outside government, including expert citizens. Gamification and innovation labs are emergent strategies to address these knowledge gaps in public administrations, which offer interesting opportunities to engage citizens, but also present important challenges. Using the Technology Enactment Framework and recent theoretical developments on gamification, open data intermediaries, and living labs, this paper analyzes the role of gamification and innovation labs in the public sector. The study is based on semi-structured interviews with public managers, government officials, and other stakeholders involved in an innovation project in Mexico City, called “Mapaton,” which uses gamification techniques to engage citizens in mapping transportation routes. We identify some of the characteristics of gamification as an open innovation strategy in government and explain how gamification and innovation labs help government go beyond traditional bureaucratic structures and rules.

R. Sandoval-Almazan (✉) · D. Valle-Cruz
Universidad Autónoma del Estado de México, Toluca, Mexico
e-mail: rsandovala@uaemex.mx

D. Valle-Cruz
e-mail: davacr@uaemex.mx

J. Ramon Gil-Garcia
University at Albany, State University of New York, New York, USA
e-mail: jgil-garcia@ctg.albany.edu

J. Ramon Gil-Garcia
Centro de Investigación y Docencia Económicas, Mexico, Mexico

Introduction

Government challenges increase every day. Along with the emergent technologies that allow citizens to send requests for services and learn more about government data, governments face new challenges from changing environmental conditions, a lack of resources and skills to solve complex problems, and pervasive organizational constraints (Al-Khanjari 2013; Gil-Garcia et al. 2014; Gutwirth and Friedewald 2013; Lapouchnian and Yu 2014; Kajewski 2007). There are also institutional barriers to problem-solving when adequate regulations are not present or government officials lack the vision to attend to these issues (Erkut and Sezgin 2014; Hughes and Carlson 2015; Kronenberg 2015). City governments are not exempt from complex socio-technical problems, and public managers in local government agencies are looking for innovative solutions to address them.

For instance, a huge problem in cities, particularly in megacities, is commuting. Mexico City as a metropolis uses 30,000 buses, minibuses, and vans to operate more than 14 million trips every day. There are, however, inadequate maps of the 1505 routes these vehicles travel; there is a clear starting point and end point, but not the complete route (Bingrong et al. 2015; Bissell 2016; Paolillo et al. 2015). This problem increases in complexity due to duplicate or ambiguous street names and routes. In addition, the names of the streets could be the same in different neighborhoods. Mexico City's transportation agency was aware of this problem and presented it at a local conference with NGO's, government officials, and government managers and CIOs from other agencies. This problem exceeds the budget limits, staff assigned to the agency, and time for collecting such data in large locations such as Mexico City. In other words, solving the commuting problem goes beyond bureaucracy and requires different perspectives and support from citizens and other stakeholders.

The focus of this chapter is the Mexico City Data Lab, a group formed by government agencies and technology-related NGOs to solve this commuting challenge. They developed the Mapaton (or large mapping effort) using gamification (Hamari et al. 2014); they launched a contest with prizes for the citizens who helped accomplish the goal of registering all transit routes during a 15-day time frame (January 29–February 14, 2016). The purpose of this chapter is twofold. First, it describes the key features of this case study about citizen participation in city transportation planning. Second, it uses concepts from gamification and open innovation theories to understand the interactions between different kinds of bureaucracies (such as the Mexico City Data Lab and the Transportation Agency) and citizen organizations, with the goal of identifying best practices, challenges, and pitfalls of this collaboration to then guide future collaborative efforts for different government problems.

The chapter is organized in five sections, including this introduction, which briefly describes government–citizen interactions and the commuting problem in Mexico City. The second section reviews the current literature about gamification, open innovation, and living labs. The third section describes the research design

and methods used for this study. The fourth section discusses our main findings, and finally, the fifth section presents some conclusions and suggests ideas for future research about this topic. Overall, we think this case study could help scholars and practitioners to better understand how open innovation in the public sector can help solve social problems that go beyond the current capabilities of bureaucracies.

From Open Innovation to Gamification and Living Labs

This section is divided into three parts. The first one develops the idea of open innovation in government, the second part explains the concept and characteristics of living labs, and the third part briefly introduces gamification theory.

Innovation in Government: Closed or Open?

The term “open innovation” was first coined for the private sector and was business related. Chesbrough (2006) defines open innovation as “the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively” (p. 1). This idea of innovation has evolved along two fronts: open and closed innovations (Casadesus-Masanell and Almirall 2010). The former means there is no control over the innovation; individuals outside the organization are asked to participate and create value by questioning old practices and providing ideas that will identify new markets or yield profits. The latter—closed innovation—occurs when the organization hires people to work for that organization in order to commercialize products, think about new markets to win, and reorganize internally to face challenges (Chesbrough 2003).

Many scholars have been doing research in the open innovation field (Casadesus-Masanell and Almirall 2010; Dahlander and Gann 2010; De Vries et al. 2016; Helfat 2006; Santoro and Conte 2009). There are important subfields related to innovation intermediaries (Winch and Courtney 2007) and living labs (Schumacher and Feurstein 2007), both of which are tools to implement and test open innovation. However, very few current studies are related to open innovation in public administration. Lee et al. (2012) conducted a cross-national comparative study and found that the USA, Australia, and Singapore have developed innovation public policies that enable and promote innovation in public administration. Bakici et al. (2013) created a similar study, but focused on local governments and analyzing public innovation intermediaries; their research reveals that private companies act as a bridge between government agencies, ultimately producing network organizations through collaboration.

Mergel’s (2014) proposes four different phases for the implementation of open innovation in government, which are important for our research: (1) idea generation

through crowdsourcing; (2) incubation of submitted ideas with peer voting and collaborative improvements to preferred solutions; (3) validation of the solution with a proof of concept with implementation alternatives; and (4) presentation of the selected solution and internal implementation of the winning idea within government (Mergel 2014). Mergel has studied the collaborative aspects of open innovation using technology, particularly the Github platform (Mergel 2015), and conducted a case study of open innovation for the Challenge.org project (Mergel and Desouza 2013). Her findings indicate that open innovation has two simultaneous effects on public administration: On the one hand, it enhances government capabilities, while on the other, it links government agencies with experts and citizen organizations that will contribute to collaboration and open innovation.

Innovation Through Living Labs

A living lab is a modern concept, but its roots can be traced back to Knight (1749), who was the first to apply the term “living laboratory.” William Mitchell from the Massachusetts Institute of Technology was the first to establish living labs. He invited people from all over the world to living laboratories, where ethnographers and other researchers observed how people used newly invented information technology. Later, this concept was moved out from of laboratories and observations are made in the real world (Mitchell 2004).

There have been numerous attempts to define living labs (Følstad 2008). Some scholars define living labs as innovation platforms where the partners involved in developing and exchanging ideas in a community. Other scholars consider living labs as test beds, special physical environments where companies and R&D partners are invited to test prototypes with users in a close-to-real-world setting (Nielsen and Nielsen 2011). In a modern context, Westerlund and Leminen have defined living labs as physical regions, virtual realities, or interaction spaces; within these labs, stakeholders form public–private partnerships to collaborate in the creation, prototyping, validation, and testing of new technologies, services, products, and systems in real-life contexts (Leminen 2013; Westerlund and Leminen 2011). The phenomena of living labs transcends many research disciplines—innovation management, user-centered design, entrepreneurship, cognitive science, organization theory, management models, context awareness, human–computer interaction, information science, and social computing, just to mention some of them (Leminen et al. 2012).

An example of a living lab is when a city government establishes active dialogues with its citizens and private and public sector actors to co-create, develop, test, and offer service innovations that use a diverse sets of platforms (Tukiainen et al. 2015). In developed nations, the high degree of urbanization has left governments, city planners, and economic development managers with the challenge of stimulating innovation to enable growth and improve the lives of their citizens (Tukiainen et al. 2015). However, developing countries do not always have these conditions.

Living labs can offer a variety of benefits to stakeholders, including new business opportunities, more effective innovation processes, and savings in R&D costs. These platforms and labs are essential elements of an innovation ecosystem. They offer a mechanism to support collaboration with stakeholders and the emergence of innovation outcomes in cities (Tukiainen et al. 2015). Living labs are also social networks that can help create innovations that have a superior match with user needs and can be scaled promptly to the global market (Leminen et al. 2012).

Successful innovation development is dependent on understanding both existing and emerging user needs, through which business opportunities are developed. For that purpose, the use of living labs has emerged as a novel way to create competences and competitive advantage. An increasing number of managers are interested in living labs as a way of transforming their conventional R&D organizations to follow an open innovation model (Westerlund and Leminen 2011). The premise of the living lab is that a city can be used as a real-world testing ground for new ideas and technologies. A vast array of sensors in the urban realm can facilitate the testing of products and services in real-world settings. Living labs are now seen as places that can not only test innovation, but also drive it (Cosgrave et al. 2013).

Finally, the term living labs often refers to both the methodology and the instrument or agency that is created for its practice. Living labs are usually driven by two main ideas (Almirall et al. 2012): (1) Users are involved as co-creators on equal grounds with the rest of participants and (2) there is experimentation in real-world settings.

User Engagement Through Gamification

Gamification originated in the digital media industry. The first documented use of the term dates to 2008, but widespread adoption of gamification only occurred in the second half of 2010, when several industry players and conferences popularized it (Deterding et al. 2011). Gamification supports user engagement and enhances positive patterns in services, such as increasing user activity, social interaction, or the quality and productivity of actions (Hamari 2013). Gamification is defined as a process of enhancing services in order to invoke game-like experiences and further behavioral outcomes (Hamari et al. 2014). Gamification has three main parts: (1) the implemented motivational affordances, (2) the resulting psychological outcomes, and (3) the further behavioral outcomes (Zhang 2008).

There are case studies of successful gamification, such as the recent example of Pokémon Go, which have boosted mobile services (Huotari and Hamari 2012). Gamification has ignited the imagination of marketers, human resources, professionals, and others interested in driving engagement. Implementations are blooming across a variety of industries such as health (HealthMonth), task management (EpicWin), crowdsourced science (FoldIt), user-generated content for programmers (StackOverflow), sustainability (Recyclebank), education (Khan Academy), and software tutorials (RibbonHero) (Deterding 2012). For the purpose of this study,

we define gamification as the use of elements of game design in non-game contexts (Deterding et al. 2011a, b). Games can be powerful experiences, leveraging both motivation and engagement.

Game design is a valuable approach for making non-game products, services, or applications more enjoyable, motivating, and/or engaging to use. Some of the elements used in gamification are rules and roles, awards, status, and competencies (Deterding et al. 2011a). These elements foster individuals' participation in an activity and increase motivation through badges and achievements.

Research Design and Methods

The research reported on in this chapter follows a case study approach (Stake 1995; Yin 2009). The case study approach focuses on organizational or individual practices that the researchers then analyze to answer questions, provide explanations, develop deep knowledge about several topics, or identify concerns about a problem or phenomenon (Gerring 2004). The case study selected for this investigation is the Mapaton project in Mexico City. We followed a qualitative research strategy, using semi-structured interviews with three different groups that contributed to the project from its beginning to its conclusion.

Data Collection

In July and August 2016, we conducted eight interviews with multiple people directly involved in the Mapaton project. We interviewed two researchers from the Data Lab of the Mexico City Government (LabCdMx) and both the research director and the project manager in charge of the Mapaton project. In addition, from the NGO PIDES (Social Innovation Laboratory), we interviewed the project manager who participates in all government projects. At the Molina Center for Strategic Studies and Environment of the National Polytechnic University of Mexico (IPN), we interviewed the principal researcher involved in the Mapaton project. From the Mobility Ministry (SEMOVI), we did two interviews with public officials directly involved with the project. Finally, we interviewed the director of Krieger Electronics, who was a consultant. All of them were identified as stakeholders, users, and/or organizers of the Mapaton project during 2015–2016. In order to retain the anonymity of the participants, we refer to them by number in our results.

We analyzed the interviews using the technology enactment framework as suggested by Mercado and Gil-Garcia (2015) in their proposal about data intermediaries. Figure 1 describes the different components of this framework.

The technology enactment framework includes five theoretical constructs (see Fig. 1). The first variable, organizational structures and processes, can be divided into two elements: (1) managerial strategies and practices and (2) general

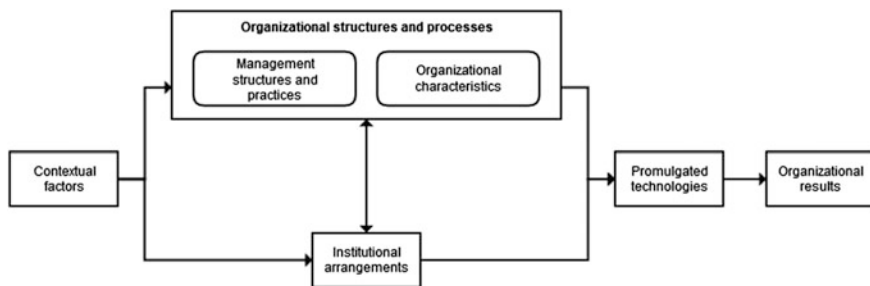


Fig. 1 Using the technology enactment framework to understand information intermediaries (Mercado and Gil-Garcia 2015)

organizational characteristics. Managerial strategies and practices represent how managers of the organization establish technological strategies, such as work practices, reconfiguration process, and IT leadership, among many others. Organizational characteristics are related to hierarchies, networks, jurisdiction, social, and human capital of the organization, and staff interactions and inertias.

The second variable is institutional arrangements, defined as the formal and informal rules observed by the organization, i.e., rules, budgets, laws, cultural aspects, and cognitive processes. The third variable, contextual factors, includes events that are outside the organization but may influence the adoption of technologies and the expected results. The fourth variable is the enacted technology, which represents the technology adopted in the organization. Finally, the fifth variable focuses on organizational results, which would be the products or deliverables generated by the interactions of the previous elements.

Brief Description of Mapaton

Mexico City is a megalopolis, which is an ecosystem with great potential for innovation. The metropolitan area is inhabited by 23 million people, and there are 238 universities, 4630 civil associations, 78,556 companies, and 228,000 public servants. Almost three quarters (73%) of the population access to Internet at least once a week, and there are 108 mobile phones per 100 inhabitants. In the city, there are 60 national research centers, multiple agencies of regional and international cooperation, people from every state and ethnic group in Mexico, and from more than 100 countries (Mapaton Report 2016).

Mapaton is part of a broader initiative called Dialogues for #OpenCity that is organized by PIDES Social Innovation and the Mexico City Laboratory as part of the Platform for Open Government of Mexico City. Dialogues' aim is to provide meeting places for people from different sectors to share knowledge, concerns, and proposals about priority issues for the city, taking advantage of the talent and

resources of each actor. Its goal is to collaboratively develop a vision for the future of the city, called Open City CDMX 2025, which centers around practices such as transparency, openness, participation, collaboration, and civic innovation. Openness is central to the format of the dialogue and brings actors who normally do not participate in government to the table. As a proposal, Dialogues emerged on October 16, 2014, at the Second Meeting of Open Government in Mexico City. During the event, 65 members of civil society representing 27 different organizations and 91 public servants from 48 different agencies agreed to exchange experiences, perceptions, and ideas (Mapaton Report 2016).

Mapaton Dialogue's objective. Among its goals, Dialogues for #OpenCity aims to use the exchange of knowledge to organize a "mapaton": an interactive map of all the routes between the 47 Modal Transfer Centers of Mexico City, using the existing databases and experiences of different actors. In turn, this space was used to collect ideas for possible applications and uses of this map in broader issues of transportation, both for government and for other users.

As a result of the Mapaton Dialogue, they identified the following information to understand the Mexico city transportation problem: (1) a map of the zone of influence inside and outside the Modal Transfer Centers, including internal and external businesses, external streets, and location paths; (2) areas of ascent and descent; (3) the public works that existed within the Modal Transfer Centers; (4) permits and physical stops in the State of Mexico; and (5) how to incorporate a radio system with extensive information about regulatory conditions.

Members of the Mexico City Data Lab and other stakeholders identified different problems and solutions to be considered such as the following: (1) To increase the quality of mobility in the city, we need to integrate a network between the State of Mexico and Mexico City. Modal Transfer Centers represent nodes dividing travel between jurisdictions. With appropriate interventions, we can improve metropolitan transportation. (2) It is important to understand the relationships between city authorities, unions, and interest groups. (3) The transition from 27,500 transport permits from individuals or very small companies to fewer companies has already begun, although the slow process will be slow.

Mapaton CDMX was an initiative for co-creation related to public transportation, which involved government officials, civil society organizations, private sector companies, and citizens. The aim was to collect and visually represent accurate information about routes, destinations, schedules, and fares of vans and buses, including an application for mobile devices, with citizen participation. The collected data was then used to design a digital map showing the routes as traced by users of the application. This case study includes the use of open and innovative processes, such as gamification, to contribute to the integration of the public transport system, solve an urban challenge, and build an open city. It was a collaborative effort, based on new laws of about transportation and open government, as well as Mexico City's Comprehensive Mobility Plan.

Therefore, the main objective of the Mapaton project was to create an open database of public transportation routes in the city in collaboration with government officials, civil society organizations, private initiatives, and the citizenship.

It implies creative participation mechanisms such as gamification and displaying information on a digital map. The specific objectives were (1) to trace public transportation routes through an innovative tool, (2) to collect data about public transportation in Mexico City on a unique platform, and (3) to compare the information generated through this process with existing information.

Analysis and Results

This section presents our main findings, organized per the framework proposed by Mercado and Gil-Garcia (2015), with some added concepts related to gamification theory as a tool for citizen engagement.

Organizational Structures and Process

According to the interviews, three different structures interacted during the Mapaton project: (1) the Data Lab of the Mexico City Government (LabCdMx), (2) the Coordination Group of Mapaton, and (3) the Mapaton volunteer network. Understanding the Data Lab is key to the project because it is a decentralized office of the Mexico City government, with its own budget and autonomy in its decisions. Its main objective is to promote innovations inside the bureaucracy of Mexico City's government. With this relative freedom from legal constraints, LabCdMx organizes the meetings of Open City Dialogues, where conversation about the city's commuting problem emerged and led to the Mapaton project. This kind of leadership and formal authority gives LabCdMx the status and the resources to call upon new actors to participate and to jointly solve this problem.

The second structure is the coordination group of the Mapaton project that was formed because of the Open City Dialogues; this coordination group includes the stakeholders described in Table 1.

The third structure was the Mapaton volunteer network, composed of the 3624 citizens that participated in the project.

Management Strategies and Practices

The Mapaton project provides evidence supporting the use of gamification to effectively solve complex problems and as the basis to design new public policies. According to Interview 1, *"Gamification allowed us to attract people of all statuses and income levels, just with a smartphone that wants to 'play' for the city, and at the same time produce a common good."* Gamification becomes the innovation, but also the tool for introducing the device to collect data—the App. Without these two strategies, the process would have been more expensive and time-consuming.

Table 1 Organizations in the Mapaton project, 2015–2016

Organization name	Description	Role
PIDES Social Innovation	NGO based in Mexico City with the purpose to foster citizen collaboration in government projects	Coordination
Mexico City Data Lab (LabCdMx)	Decentralized agency for the Mexico City government to promote public innovation, facilitate networking, and create value from government actions	Coordination
Transportation and Mobility Ministry (SEMOVI)	A government agency in charge of all transportation in Mexico City	Coordination
Transfer Mobility Center (CETRAM)	These transit stations are more commonly known as bus or train stations	Coordination
Institute for Policies on Transportation and Development (ITDP Mexico)	An international institute that promotes sustainable and equitable transportation globally, with offices in Mexico, Brazil, Argentina, China, Europe, and Indonesia	Collaborators
M + Urbano	A local company that builds public facilities and infrastructure	Collaborators
Transconsult	A Mexican consulting company that specializes in transportation and roads	Collaborators
Urban LaunchPad	A social venture dedicated to building open urban information structures in places around the world	Collaborators
Krieger Electronics	A software consulting firm that supported the development of the App	Collaborators
British Embassy in Mexico	Embassy of the UK in Mexico	Alliances
Hewlett Foundation	A nonpartisan, private charitable foundation that advances ideas and supports institutions to promote a better world http://www.hewlett.org/about-us/	Alliances

Source (SETRAVI-INEGI 2007)

As one of the interviewees mentions: “*This data collection would have to be done in 600 hours of man time, just to collect the different paths, routes, and stops. We also needed the time for processing*” (Interview 2).

The Mapaton project also introduced new management practices for coordination of the project team. Everyone on this team had a voice and a vote, regardless of whether they were a member of an NGO, a government official, or a consultant. The organization and decision making were horizontal and made through collective action. LabCdMx and PIDES divided expenses for all of the project’s implementation. According to Interview 1, “*LabCdMx had a budget for the prizes in the game and to hire an outsourcing company that developed the App. PIDES sponsored the organizational meetings at its headquarters and any other meetings of the volunteers.*”

It seems that the combination of an innovative strategy—gamification—along with a horizontal organizational structure, a shared budget, and no direct government control were desirable conditions that allowed open innovation to happen.

Organizational Characteristics

One of the interesting findings from this research was the evolution of Mapaton’s coordination team into a community. The Open City Dialogues triggered discussions and debates to understand and solve the mapping problem, but the gradual inclusion of new members, experts, and institutions into this conversation produced a community interested in the more general transportation challenges. *“We became friends and now have contacts in the different government organizations,”* said Interview 3.

In addition to the face-to-face meetings, there were also conversations using electronic tools, particularly WhatsApp. One of the interviewees describes it in the following way: *“Mapaton’s organizational meetings were held on a weekly basis every Tuesday on PIDES’ office. However, we meet several times during the days prior to the launch of the Game, through our group on WhatsApp”* (Interview 1).

We identify some of the organizational characteristics of this project in Table 2.

Institutional Arrangements

We identified three different institutional arrangements that influenced the Mapaton project. The first is the legal framework in which the project was immersed. Mapaton was based on a new law called “Open City and Mobility of Mexico City,” which represents a radical paradigm shift for the issues of collaboration and mobility in the metropolis. A complementary regulatory framework is the Comprehensive Mobility Plan 2013–2018 that includes funding for studies about the best strategies for structuring and gradually improving the public transportation system. This plan implies a new challenge to collect relevant information about

Table 2 Organizational characteristics of the Mapaton project

Organization/characteristic	Coordination team	Mapaton game
Leadership	Collective, crowdsourcing	None or self-organized
Decision making	Collective	Self-organized, subordinated to the rules of the game
Task distribution	Distribution by experts	Distribution by experts or subordinated to the rules of the game
Rules, legal constrains	Self-organized, informal rules	Subordinated to the rules of the game

transportation in the city and to implement recommendations based on that new knowledge.

A second important set of institutional arrangements is represented by the Mapaton rules. Users could download the App and then sign up for an account to start winning points by mapping different routes. The more routes, the more points. The winner is the person or the team that wins the most points. An important note is that points are obtained based on specific characteristics of the routes; some routes are more time-consuming and for that reason provide more points. Volunteers were free to organize themselves to map the routes as they wished. The App and online system collected the mapped routes, and in a second stage, the system would classify and label the routes.

In terms of institutional arrangements, there were also informal rules for participation in Mapaton's organizing committee. These rules related to the WhatsApp group for internal communication were important: Only short messages related to the topic of Mapaton were allowed, including messages when a project goal was achieved. Other messages were erased, and the user could be deleted from the group without prior warning. The use of WhatsApp as a communication and organization tool was important, because it constituted an informal and efficient communication channel, and these rules were a way to maintain that efficiency.

Contextual Factors

According to our interviews, two contextual factors influenced the adoption of technologies in the case of Mapaton. The first one is the recently published and approved Open Government Law for Mexico City. This law has no precedent in the history of openness and freedom of information in Mexico. The law promotes the concepts of open data and the use of technology to open government databases. Some of the reasons to create the LabCdMx were founded in this law.

There was also a cultural shift toward the creation of innovations for the city, including the development of a "living lab" to generate the conditions for an open city. Many NGOs, such as PIDES, started promoting open data technologies to achieve this goal in the city. The advancement of the use of certain technologies in Mexico, such as smartphones and the resulting increase in Web connectivity, also increased the possibility of successfully implementing the Mapaton project.

Enacted Technologies and Information

The Mapaton project has produced three enacted technologies that produce some level of innovation. The first one was to transform prior mapping technologies,

such as Flocktracker from MIT,¹ into a new one: the App developed for the Mapaton game. The second innovation was the use of Google technology, specifically the General Transit Feed Specification (GTFS) Standard,² which was adapted to Mexico City's specifications and challenges. One of the interviewees mentioned, "We used a lot of Google Technology to develop the App. We adapted the GTFS standard to the Mexico City public transportation reality" (Interview 5).

The third enactment was the use of gamification to engage citizens. Using games to develop collective intelligence and foster public engagement was a key point for the Mapaton project: "At the beginning of the game people became competitive and had a lot of winning desire. But once the game was running they realized the game could produce a social benefit for all. This changed their perspective and got them more committed to the final product instead of just the game" (Interview 4).

Results

The Mapaton project produced three deliverables for Mexico City's government: (1) an API interface³ to interact with the database generated by the Mapaton game called Mapaton Dashboard,⁴ (2) a database of 15,000 detailed routes in a database format,⁵ and (3) a database in both CSV and GTFS⁶ files available for the use of third parties or the next hackathon in the city.

These three products can potentially address Mexico City's commuting problem. First, the city now has a general overview of the transportation problem, with high-quality, updated data. Mexico City can now start making decisions based on that data, with a database that only cost \$500,000 pesos and was gathered in a record time of three weeks, instead of requiring months and several millions of pesos. One of the interviewees referred to the value of this database: "One of the most important outcomes is the identification of hot zones, or crime hot spots in commuting centers or bus stations. Police immediately took action to make these places safer" (Interview 3).

Unfortunately, the team that organized the Dialogues for #OpenCity and the Mapaton project disintegrated at the end of the project. This was because public officials in charge were fired or moved to another position, personnel from the

¹A platform of the Department of Urban Studies and Planning of MIT, which allows the generation and real-time updating of information on the transport routes of the city.

²The General Transit Feed Specification (GTFS) defines a common format for public transportation schedules and associated geographic information. GTFS "feeds" allow public transit agencies to publish their transit data and developers to use that data to write applications.

³API <https://github.com/LabPLC/MapatonAPI>.

⁴Mapaton Dashboard <http://datos.mapatoncdm.mx/#1>.

⁵Database (<http://datos.labcdm.mx/dataset/mapaton-cdmx-gtfs>).

⁶GTFS: <https://developers.google.com/transit/gtfs/reference?hl=es#agencytxt>.

Mexico City Lab and PIDES also move on. Government personnel rotation and changes in the political environment are common problems in Mexico City.

The Use of Gamification for Mapaton

According to Deterding et al. (2011a), gamification has three important elements: a game-like experience, rules, and awards. First, it creates an enjoyable experience of a quest that engages citizens to collaborate. This idea of mapping all possible routes in a short time frame with the purpose of winning a prize was key for Mapaton. Second, the Mapaton project stated some rules for the game inside the app; these rules included the maps that could be registered, a requirement to take photographs as evidence of the transportation route, and that data points were collected from a single user and a single device. Third, Mapaton awarded badges when citizens reached certain achievements in the game; these badges were a motivational tool and winners could receive monetary awards or even just social status in the game.

As our results show, gamification was an effective tool to engage citizens and foster participation in the Mapaton project, which was key for collecting useful data for government decision making. It also represents a new model for the public transportation bureaucracy of Mexico City: one that could potentially be more efficient and effective to face complex public problems in Mexico's largest metropolis.

Conclusions

This chapter reports the findings of a case of government innovation through gamification and living labs. As a starting point, we use the framework developed by Mercado and Gil-Garcia (2015). We found evidence that labs such as LabCdMx promote innovation not only among city agencies, but also with other partners outside the government. These labs can evolve into a learning community or a community of practice and institutionalize over time.

Overall, there are a few key contributions from the Mapaton case study. The first one is a better understanding of the role of labs and gamification in government open innovation efforts. Second, we also learned that these communities may not last long because of government personnel rotation and changes in the political environment. However, the social network originally created in the context of a specific project could potentially empower other innovations and provide sustainability to the efforts. Another potential contribution is the use of gamification as a tool for citizen participation in government contexts. The Mapaton case presents solid evidence about the use of this tool to promote citizen engagement in a relatively long project (two months) and to produce relevant data that will be an input for new public policies.

In addition, efforts such as the Mapaton project have the potential to change the relationship between government and civil society. In this regard, government needs to accept that it will not always be the leader when dealing with certain social problems and that the role of civil society organizations is growing as they produce new ideas and strategies. Government can shift to a capacity building perspective that empowers civil society organizations to solve public problems alongside government agencies. Following this logic, the Mapaton case is a good example of going beyond bureaucracy, because it is a successful experience that gathered a novel network of diverse organizations and citizens, using information technology to collaborate with government toward the solution of complex public problems.

The Mapaton project also produced two interesting technological innovations. The first one is an App for mobile devices adapted to Mexico City's requirements. The second is an iterative process to develop new ideas using technology and collective intelligence. Overall, we argue that gamification and living labs can play an important role in specific innovation projects, but they also create broader opportunities for actors to foster multiple innovation paths, which could be a topic for future research.

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Participatory Constitutional Design: A Grassroots Experiment for (Re) Designing the Constitution in Greece

Evika Karamagioli, Mary Karatza, Stephania Xydia
and Dimitris Gouscos

Abstract This chapter reports how participatory processes and ICT tools can go against rule-driven bureaucratic approaches to political participation and public deliberation, trying to defy strict procedural norms in favor of more flexible formats for citizen mobilization, political co-thinking, and sustained social innovation in the area of constitutional building. After describing key theoretical issues on trends and perspectives of public participation in constitution building processes, we review arguments in favor of ICT and social media use in constitutional building and then discuss an ongoing Greek bottom-up experiment named Syntagma 2.0 that introduced an innovative co-creative process for the production of a new Constitution for Greece, to be delivered by the citizens for the citizens. Based on the results of the aforementioned project so far, we present success factors for such initiatives.

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E. Karamagioli (✉)

Scientific Associate, Laboratory of New Technologies in Communication,
Department of Communication and Media Studies, Education and the Mass Media,
University of Athens, Athens, Greece
e-mail: karamagioli@gmail.com

M. Karatza

Strategic Designer & Founder, Place Identity Clusters, Athens, Greece
e-mail: mary.k@theswitch.gr

S. Xydia

Cultural Manager & Founder, Place Identity Clusters, Athens, Greece
e-mail: stephania.xydia@gmail.com

D. Gouscos

Assistant Professor, Department of Communication and Media Studies,
University of Athens, Athens, Greece
e-mail: gouscos@media.uoa.gr

Introduction

According to the international literature and relevant surveys over the last four decades, (a) at least 118 countries adopted new Constitutions, often accompanied by popular expectations that political and civil rights would improve, (b) over 40% of the constitutions currently in force around the world required public approval through some form of a public referendum (Elkins et al. 2008), and (c) in any given year, some 4 or 5 constitutions will be replaced, 10–15 will be amended, and another 20 or so proposals for revision will be under consideration (Elkins et al. 2009). Given that constitution making may only happen once in a generation, it is often seen as a unique moment shaping both the present and the future of a country (Luz et al. 2015).

There is broad consensus in the literature about the importance of public involvement in constitution building (Blount et al. 2012a, b). Opinions have shifted to such an extent that legal scholars and advisors now argue that participation and a high degree of transparency are international norms for constitution making (Frank and Thiruvengadam 2010).

We find that the right to public participation in democratic governance exists in international law, notably in the International Covenant on Civil and Political Rights, which establishes minimum obligations for participation in public affairs. In addition, the United Nations Committee on Human Rights has recognized a specific right to participate in constitution making (Hart 2003; Deely and Nesh-Nash 2014).

Evidently, participatory processes are seen as an exercise in democracy and as a way of supporting the growth of a democratic political culture in a society (Hart 2003; Moehler 2006).

Participatory constitution building has therefore been advanced as a standard operational method due to such processes being perceived as contributing to democratic governance (Saati 2010) and the enhancement of constitutional legitimacy (Moehler and Marchant 2013). It is considered to assist countries seeking to address citizens' demands for accountable, transparent, and democratic practices to contribute to civic consensus, addressing deep social divisions, and exclusions (Gluck and Brandt 2015). It is also suggested that a participatory approach builds social capital since ownership induces a sense of influence and trust (Widner 2005).

Over the last decade, many public participation experiences in transitional, post-conflict but also democratic regimes have flourished. All the way from Africa (Uganda, Kenya, and Somalia) to Arab Spring (Tunisia and Morocco), Latin America, and last but not least Europe (Iceland, Ireland, Romania, and Italy), we can identify efforts (top-down and bottom-up) to establish flexible, counter-bureaucratic instruments of national dialogue and public consultation.

In several cases, social media and mobile communication tools complete activities in physical spaces, showcasing their potential to overcome the limitations experienced by traditional forms of participation. Such configurations allow citizens to participate in different stages of the process and collaborate in constitution drafting, thus fueling a new level of civic networking and social participation.

Online platforms that offer information and targeted education features and apps that allow users to express their opinions and communicate them to the official drafting body (Deely and Nesh-Nash 2014) are only two examples of technologies used in this context, which also encompass data gathering and analysis and content visualization techniques.

The scope of the proposed chapter is mainly addressing the Liquid Democratic Collaborative Decision-Making topic of the edited volume, with lateral contributions to the topics on Peer Production, Crowd sourcing, and Mass Online Deliberation in the area of constitutional building. All in all, this chapter reports how participatory processes and ICT tools can go against rule-driven bureaucratic approaches to political participation and public deliberation, trying to defy strict procedural norms in favor of more flexible formats for citizen mobilization, political co-thinking, and sustained social innovation in the area of constitutional building. After describing key theoretical issues on trends and perspectives of public participation in constitution building processes, we review arguments in favor of ICT and social media use in constitutional building and then discuss an ongoing Greek bottom-up experiment named Syntagma 2.0 that introduced an innovative co-creative process for the production of a new Constitution for Greece, to be delivered by the citizens for the citizens. Based on the results of the aforementioned project so far, we present success factors for such initiatives.

The Enabling Role of Public Participation in Constitution Building Processes

Theories and Concepts of Public Input in Constitution Building

Constitution making can be broadly defined as a set of activities intended to produce a constitution, the highest law of a state covering both the process of drafting and substance of a new Constitution, or reforms of an existing constitution” (UN 2009). Klein and Sajo (2012) define it as a “decision-making process carried out by political actors, responsible for selecting, enforcing, implementing, and evaluating societal choices.”

There is much speculation but relatively little evidence about the impact of different design processes on constitutional outcomes. Much of the debate reduces to the question of who is involved and when (Ginsburg et al. 2009) outcomes. Or according to international bibliography, any particular instance of constitutional design must deal with certain basic questions of organization and process. These include designating who is to be involved; when that involvement takes place; and how the actors are to proceed in formulating, discussing, and approving a text. (Ginsburg et al. 2009).

For the vast majority of citizens, participation was traditionally limited to voting either to elect a constituent assembly at the beginning of the process, or to endorse

or reject the constitution when drafting was completed (Ginsburg et al. 2009). Since the end of the Cold War, efforts have been made to broaden participation in the constitution-making process in recognition of the growing importance of popular engagement as a basic right and a source of legitimacy. While there have been some outstanding examples of successful processes, a review of the literature suggests that progress has been uneven. This seems to be partly as a result of the daunting logistical challenges, partly a consequence of poor planning, and sometimes due to a lack of conceptual clarity (Deely and Nesh-Nash 2014).

This new trend of participatory constitutional building that values ordinary citizens as the prime agenda setters and decision makers also acknowledges constitution making as a process rather than an “event” (Deely and Nesh-Nash 2014; Moehler 2006; Hart 2003). The meaning of public participation and the practical employment of such a participatory approach is constantly being broadened to include various methods of involving the citizenry in the stages of the process (before the writing phase, during drafting, and after the constitution is finalized, promulgated, and implemented). The way it is perceived and finally procedurally employed varies greatly from one context to another.

A growing range of strategies and methods that seek to educate citizens on the basic elements of constitutionalism and to survey their views or provide formal opportunities for consultations with groups representing various political, religious, professional, economic, cultural, and social interests and rights can be identified worldwide (Hart 2003; Voigt 2003; Samuels 2006). Brandt et al. (2011) make the distinction between direct and indirect forms of participation. Direct participation includes traditional approaches that range from face-to-face meetings, community gatherings, and national conventions focusing on key interest groups or themes, to debates on specific issues and options, and public opinion polling using digital technology. Mechanisms to solicit and process written submissions are designed and incorporated in the formal process. Indirect forms of participation can vary from demonstrations in support of particular interests to other forms of lobbying, to any form of community or group mobilization or collective action to create pressure for a particular demand. It also includes written submissions and petitions submitted by individuals and groups where no formal process or mechanism exists (Ghai 2004; Hart 2003).

A constitution establishes a system for the distribution of power and resources in society, regulating political institutions, constraining executive power, and protecting fundamental rights and privileges. By reaching out to the various communities and constituencies and bringing them together around the goal of developing a new Constitution, the process can contribute to peacebuilding and reconciliation, educating the population and engaging them in a national dialogue on the form and function of the future state and their place in it. Participatory constitution-making processes can serve therefore two particularly urgent functions: (a) It provides a platform for engaging the major groups in society in the development of a new political system and (b) It establishes a foundation for a culture of democratic political behavior strengthening the degree of ownership of and commitment to the resulting constitution (Ghai and Gali 2006).

Skeptics characterize the participatory model as normative, impractical due to problems of scale, or over-reliant on referenda that reinforce the status quo (von Beyme 2011).

Empirical Research Results of Public Input in Constitution Building

By conducting one of the first large-scale empirical analyses of participatory constitution making, Eisenstadt et al. (2014) show, however, that transparent, meaningful input during “constitutional moments” generates vital path-dependent benefits for “back-end” democracy.¹

Ginsburg (2012) in another study reports that inclusive drafting increases the likelihood of constitutional endurance, and is associated with constitutional rights and democratic institutions such as universal suffrage, the secret ballot, and a guaranteed role for public input into amending constitutions. Moreover, empirical evidence exists that participation generates a “virtuous cycle” that actually improves policy performance (Fox 2014).

According to IDEA’s 2016 general finding, “more representative and inclusive constitution building processes resulted in constitutions favoring free and fair elections, greater political equality, more social justice provisions, human rights protections, and stronger accountability mechanisms” that constitutions in which the public had an approval role are more likely to involve the public in various decisions thereafter (Samuels 2006).

Additionally, the association between processes that involve the public in the adoption of the constitution and the presence of rights and certain democratic institutions in the resulting document is identified (Ginsburg et al. 2009).

From Nicaragua in the 1980s to South Africa in the 1990s and from East Timor in the 2000s to Iceland, Ireland, and Romania in the 2010s and more recently Mexico, constitution makers have reached out to millions of citizens in an effort to draft national charters that enjoy maximum legitimacy and national ownership and that genuinely reflect the needs and aspirations of the people. Constitutional dynamics are thus not restricted to new democracies in the making, but also involve established democratic regimes.

Brandt et al. (2011) note that many processes are undertaken with little reflection about what constitutes a genuine and effective public consultation campaign. Large sums of money are spent only to have the views ignored or never analyzed (Deely and Nesh-Nash 2014).

In sum, despite sound theoretical justifications for participation in the democratization literature, four decades of democratic transformations, and the emergence of strong international norms, we still have a weak empirical basis for assessing the value of direct citizen input into constitution making. There is no set pattern for

¹Using data covering all 132 new Constitutions in 118 countries between 1974 and 2011.

public participation in constitution-making processes. (Deely and Nesh-Nash 2014).

In most cases, it is seen as an element of the design of the overall process, in some, it is an afterthought: “Actual constitutional design processes employ scattered and usually rather anemic forms of popular participation and oversight to substitute for actual consent” (Blount et al. 2012a, b) According to Moehler and Marchant (2013), at least three key dimensions along which participatory constitution-making processes differ from one another are as follows: (1) the extent of mass citizen involvement in the process; (2) the degree of elite polarization; and (3) the level of citizen access to information.

The Innovative Role of Technology and Social Media in Constitutional Building

Although traditional forms of engagement in constitution-making processes have had limited success in delivering a basic combination of prerequisites for meaningful participation, there is evidence that Internet and digital communications technology can contribute in overcoming these limitations (Deely and Nesh-Nash 2014).

Constitutional projects on the Web and mobile phones are less cumbersome, less costly, and less logistically difficult to implement than many of their offline alternatives that will not transform the nature of constitution writing, which is a quintessentially political activity. They are only tools, but they are potentially very powerful tools (Gluck and Brandt 2015).

Technology and Social Media as Facilitators for Participatory Constitutional Building

There is evidence that new technologies and social media can increase participation in and the perceived legitimacy of constitutional processes. Constitution drafters have recently begun using the Web and mobile phones to educate citizens on the constitution-writing process and engage them on issues of concern. Without radically transforming the fundamental nature of constitution making that always has been and will continue to be a political exercise, they can help constitution makers engage with the public and civil society and help the population at large mobilize, network, and advocate for specific constitutional issues (Gluck and Ballou 2014).

In addition to providing a conduit for expression of popular views, these tools are playing a critical role in educating and sensitizing citizens on constitutional matters along with enabling grassroots mobilization. They respond directly to the need for information about the process and offer online education about substantive issues; blogs and micro-blogs provide guidance on contentious issues and options;

and any number of new apps can facilitate consultations with citizens and ensure that the outcomes of these consultations are synthesized and incorporated into deliberations and drafting (Deely and Nesh-Nash 2014).

Facebook and Twitter have in many places replaced meeting rooms and coffee shops as the preferred platforms for NGOs and individuals to identify and mobilize like-minded supporters, build networks, and force multiple education and advocacy efforts. Social media and technology are also increasing the transparency of constitution making by recording and archiving key constitutional documents and events in virtual libraries. This access is important not only for symbolic and educational reasons but also for later generations, who will be able to draw upon the constitutional record when interpreting the constitutional text (Gluck and Ballou 2014).

Examples of Use from Both Top-down and Bottom-up Perspective

In the political and legal domains, crowdsourcing methods and tools have been used as a means to collect input from citizens on a variety of areas, such as legal drafting, legal reform, legal education, policy-making, and human rights advocacy (Aitamurto Aitamurto 2012; Casanovas Casanovas 2012; Luz et al. 2015).

Web-based and mobile technologies offer opportunities to connect citizens more directly with drafters. There is evidence that projects using mobile technology therefore can in theory overcome the logistical, political, climatic, and geographical difficulties frequently encountered when using traditional outreach methods (Gluck and Ballou 2014).

Over the last five years, crowdsourced constitution making initiatives has been deployed in more 15 countries across the world: Iceland, Kenya, Ghana, Somalia, Morocco, Tunisia, Egypt, Libya, Malawi, Zambia, Yemen, Nepal, Fiji, Ecuador, Bolivia, Chile, and lately Mexico.

In Ghana in 2010 and 2011, the Constitutional Review Committee received more than sixty thousand public submissions (many through e-mail, Facebook, and Twitter). After identifying twenty-five issues that merited additional consultation and scrutiny launched a mobile phone project that sent text messages with questions about those issues. To answer the questions, mobile phone users texted their responses to a designated number at a nominal cost. In Kenya in 2010, the Committee of Experts set up a Facebook page and chat rooms to generate public discourse and elicit feedback. In Libya in 2012, the prime minister-elect used Facebook to poll citizens on whether they preferred the constitution-making body to be appointed by the parliament or directly elected by the people.

But crowdsourced constitution making was famously displayed in Iceland in 2011 with the use of social media to collect peoples' views and opinions on the constitutional draft (Landemore 2014). The country's constitutional committee members posted draft provisions for comment online. After a period of public debate, the committee posted revised versions of the articles. The engagement reportedly resulted in several changes to the proposed constitution. Even more important, the effort "nationalized" the debate and the process, increasing the public

ownership and legitimacy of the proposed amendments. A post on the Facebook page of the Iceland Drafting Committee sums up the spirit that animated the process: “Never again can the world be told by the custodians of the old that the people cannot be relied upon to write the contract between citizens and government, and write it well.” (Bater 2011). The proposal for a new Constitution created by the Constitutional Council was put to a non-binding referendum, where it won the approval of two-thirds of the voters. The bill, however, was never enacted, because the government’s term ended.

In Mexico City, locals can petition for issues to be included in the constitution through Change.org and make their case in person if they gather more than 10,000 signatures. They can also annotate proposals by the constitution’s drafters (a group of 28 “notable figures” designated by the mayor) via PubPub, an editing platform similar to Google Docs.²

The idea, in the words of the mayor, Miguel Angel Mancera, is to “bestow the constitution project with a democratic, progressive, inclusive, civic, and plural character.” The constitutional assembly, however, is under no obligation to consider any of the citizen input. And then there are the practical difficulties of collecting and summarizing the myriad of views dispersed throughout one of the world’s largest cities (Campoy 2016; The Guardian 2016).

Civil society groups and individual citizens are also using social media to insert themselves into the constitutional debate. In Egypt, commentators and activists published leaked copies of the draft constitution on Twitter, literally photographing and sharing individual pages as they were released, prompting a lively exchange of views. In Libya, non-governmental organizations (NGOs) such as Lawyers for Justice in Libya (LFJL), the Voice of Libyan Women (VLW), and H20LY have used Facebook and their own Web sites to advocate for a fair and inclusive consultative process. An Egyptian civil society group prepared a “parallel constitution” to the one written by the Egyptian Committee of Fifty, the official body charged with drafting the 2013 constitution, using social media and the Internet to create an open-sourced constitutional text accessible and editable by the general public. In Somalia, for example, where a lack of security impeded access to citizens, Google Ideas and Voice of America (VOA) used mobile phones to organize a national public opinion poll on the proposed constitution. The results of the survey were broadcast on VOA radio into Somalia and shared via printed handouts with constitution drafters. Al-Jazeera and a regional NGO led a similar polling effort through the SMS and Web program Somalia Speaks. Their program, unlike VOA’s, was opt-in, allowing people to text their opinion on the draft constitution free of charge. The results were displayed on an interactive map published on the Al-Jazeera Web site.

More recently, the People’s Constitution project was initiated by the Dutch Pirate Party and Amsterdam civil society. It aims to crowdsource an alternative to

²Available at <https://www.constitucion.cdmx.gob.mx/constitucion-cdmx/#grupo-trabajo>.

the Treaty of Lisbon, one of the three treaties forming the constitutional basis of the European Union. “Democracy can and should be much more interactive, using modern tools,” the initiators say. “We believe that people deserve the responsibility to really participate in all forms of decision making. Europe is the perfect example of how technocrats prefer to use less democracy because it makes it easier for them. Well clearly it has not worked.”

The People’s Constitution project was inspired by the constitutional reform that took place in 2011 in Iceland. “We want to show the European Parliament that people can work together to shape a European future,” the initiators of the People’s Constitution project say. “The goal is to work together with people from all over Europe to create a manifesto. We want politicians to look at what we’re doing and get on board.”³

Summing up in all mentioned examples, the public was invited to comment, answer questions, vote, or “like,” but not to “write” the constitution itself. To date, crowdsourced constitution making has heavily relied on online deliberation, but the impact of such deliberative processes on the final outcome is yet to be fully assessed (Luz et al. 2015). However, what is evident is that the focus is on eliciting and collecting opinions from public deliberation, generally via social media which unfortunately makes crowdsourcing initiatives accessory to the drafting process developed elsewhere (e.g. in constitutional commissions).

Syntagma 2.0: A Grassroots Experiment for (Re)Designing the Constitution in Greece

Syntagma 2.0⁴ is a Greek bottom-up experiment that introduced an innovative co-creative process for the production of a new Constitution for Greece, to be delivered by the citizens for the citizens was initiated. It was initiated by a group of young people after the large “Indignados” protests that took place on Syntagma square in 2011. “Syntagma” is the Greek word for Constitution and “2.0” (from the Web 2.0) refers to the possibility for citizens to become co-creators rather than mere consumers of policy-making processes. According to the project’s initiators, “Greece is trapped in a vicious circle of political instability, citizen disillusionment, and institutional disintegration. Outdated legal frameworks and closed networks of power are suffocating the country’s creativity, inhibiting novel solutions that could spring from civil society. Political extremism, cynicism, abstention, and an uncontainable brain drain are just few of the symptoms of a country in dire need of addressing the endemic causes of the crisis through a wave of political innovation. Greece needs new models of governance and participatory decision making.”

³Available at <https://peoples-constitution.yrpri.org>.

⁴See <http://syntagma.politeia2.org/>.

The Project and Its Implementation Phases

The project focused on developing new concepts and methods on constitutional design and law-making processes in order to facilitate political reform and innovation at local, national, or international level. In the framework of the project through a translocal network/community action research on participatory constitutional design and legitimacy, coupled with review of relevant literature innovative bottom-up practices and prototype, methodologies for citizen participation have been designed and tested in practice for the first time in Greece.

Initiators responsible for the design and implementation of the project were the members of Politeia 2.0,⁵ a platform for political innovation that develops digital and physical applications for the reinvention of Democracy.

According to one of the members of Syntagma 2.0, Greece is the ideal test bed for civic experimentation as policy- and decision-making processes at local and national level fail to facilitate creativity, cross-sector collaboration, citizens' participation and social innovation. Political institutions are controlled by closed networks of power and private interests that impede openness, trust, participation, and transparency. Globally, political structures fail to keep up with the social challenges and technological progresses of our times. Instead of a failed experiment of endless austerity, they see Greece as the testing ground for visualizing, prototyping, and scaling new political models based on self-government, decentralization, and citizen empowerment. Through the platform, they map and connect civil society initiatives that promote bottom-up problem-solving at local level. By opening data and disseminating new knowledge, they expose the democratic deficit in the country and advocate for participatory governance, while producing new and concrete experiences of political deliberation in physical space. Finally, they network with similar initiatives internationally to exchange best practices in social and digital technologies for Citizens' Engagement, being part of a global transition to the commons.

Syntagma 2.0 produces exemplary experiential opportunities of democratic dialogue and participatory decision making. The project has a 3-phase methodology used to combine activities in physical space with virtual processes and tools. In phase A, a series of Citizens' Workshops have been realized all over Greece in order to achieve the representation of demographic diversity. So far, 4 workshops took place in 3 cities gathering more than 250 participants in total, of all ages and backgrounds aged 18–78. The composition in the 4 workshops was 63% men and 37% women, the average age 35–45 years old, a 65% was holding a university degree and finally more than 50% were working in the private sector while 15% were for the time being unemployed. People came together in order to discuss and

⁵In 2012, Politeia 2.0 won the Audience Award at the EU Investment Bank Social Innovation Tournament. Politeia's groundbreaking approach lies in involving citizens in all steps of the Constitutional reformation—people discuss, plan, draft, promote, and ratify their Constitution. Additionally, information campaigns, Web apps, educational trainings, cultural events, and social design laboratories aim to create new theories and applications of Democracy for Greece.

identify the values as well as the institutions and processes that characterize the State they want to live in. During four hours, two rounds of discussion took place using the World Café method,⁶ which facilitates intimacy and in-depth discussion in small groups of five. They were called to imagine the State they want to live in and design the institutions that can bring their ideas into reality focusing on “what” and “how.” The workshops were followed by experts in participatory leadership, academics, and practitioners from the UK, Germany, Austria, the Netherlands, France, and Israel. Exchange of know-how and experiences was also performed with the members of the Iceland constitutional committee.⁷

At the end, results were compiled in a “harvest” report available online.⁸ Key themes that were raised as essential either to be included or to be treated differently in a new Constitution (for more than 55% of the participants) were as follows: the institutionalization of direct democracy mechanisms, the separation of public power, judiciary independence, the modification of the current educational legal framework, the protection of common goods, and the protection of the environment. Additionally most participants evaluated the experience and the methodology used with a rating above 90% while they gave a 70% grade to the belief that we can bring about change. 81% are familiarized with the content of the Greek constitution, 85% consider that the constitutional dispositions have a direct effect on our lives, and 90% are willing to be involved in bottom-up constitutional building activities.

All the data gathered were analyzed, visualized,⁹ and will feed into the next phase. In phase B of the project, a quantitative national survey is planned to take place, focusing on citizens’ perspectives for a new Constitution in order to highlight prevailing and deviating views. The survey will have a sample of at least 1500 randomly selected citizens so as to ensure diversity in gender, region, age, education, and economic background. Citizen feedback will be selected through telephone interviews and an eQuestionnaire. Statistical analysis and data processes will be performed by a specialized academic partner. The results will be available online so as to feed the constitutional reform debate and facilitate the interaction among all interested stakeholders.

In phase C, to conclude this project, a Citizens’ Assembly for a new Constitution with the participation of 400 randomly selected citizens by lot is planned to take

⁶The World Café is a structured conversational process, theoretically paving the way for open and intimate discussion, ultimately accessing the collective intelligence in the room. Replying to a set of pre-posed questions, participants move between a series of tables where they continue the discussion. Apart from speaking and listening, individuals are welcome to write or doodle on a paper tablecloth. When people alternate between tables, they can see what previous members have expressed in either words or images. In the World Cafés, the objective is to boost discussion and hit collective targets surrounded not by a bureaucratic office atmosphere but a café ambience.

⁷See https://www.youtube.com/watch?v=Azztf_FSSSI.

⁸See available harvest reports at <http://syntagma.politeia2.org/apotelesmata/>.

⁹See <https://www.facebook.com/Politeia2/photos/a.217158848445457.1073741833.183452181816124/401591693335504/?type=3&theater>.

place both physically and virtually, using social media and an online platform so as to propose concrete Constitutional articles.

In June 24, 2016 while commenting on the 42nd anniversary of the post-Junta period and reinstating democracy, the Prime Minister of Greece, Alexis Tsipras, called for all Greek parties to participate in the dialogue for constitutional reform. He has announced that the revision process would start with a wide consultation in all municipalities, a process not envisaged by the Constitution itself as revisions of the Constitution are handled only by the Parliament.

In light of this political initiative, Syntagma 2.0 has initiated a mobilization of civic groups and initiatives so as to open up the discussion on what a participatory constitutional reform process should consist of. A set of terms and conditions for a prototype of such an inclusive, transparent process that will enable meaningful and engaging civic participation is under formulation by Syntagma 2.0 team and will be used in an effort of sensitization and awareness raising of the general public.

The Role of Technology and Social Media in Syntagma 2.0

According to the project initiators, “Every age is characterized by its tools.” We are now in the era of the Internet. The solution thus lies in raising political participation, by making use of the Web 2.0. Existing creative potential within civil society could be made use of and turned into an “evolutionary spiral.” By engaging individual citizens, local projects and existing best practice projects could cooperate and usher into a productive social dialogue. Their aim is to raise participation in democracy through the Internet. Individuals can participate in a process to find a common ground and hopefully produce a new, collectively composed constitution for Greece. So far, “the climate is mildly optimistic but the outcomes inspiring the most active citizens are those that are discriminated upon, ‘marginalized’ by age, caste or gender, the unemployed, pensioners and women.”¹⁰

Social media (Facebook and Twitter)¹¹ were used during the first phase so as to inform citizens about the project and its activities, expected results, methodology to be used, further action plan, and distribute civic education material such as articles, interviews with academics, activities of other platforms, and similar initiatives infographics. All project results and methodology were openly available via the project Web site. So far, results demonstrate the readiness of society to discuss constitutional matters and the maturity of participants to make comprehensive, realistic proposals.

Aiming at the organic spread of the project in different cities, the core team of Syntagma 2.0 documented and published the entire process of hosting a Citizen’s Workshop into a detailed toolkit. The toolkit provides guidelines for

¹⁰Interview with Syntagma 2.0 team available at <http://www.reloadgreece.com/en/blog/inspirational-stories/politeia-2-0-a-laboratory-for-democracy>.

¹¹The account of Politeia 2.0 has 2.950 followers in Facebook.

communication, production, facilitation, as well as diverse sources on participatory methods for civic deliberations in the physical space. It is made available using GoogleDocs, allowing for the methodology to be developed by different team members according to the experience gained with every workshop.¹²

According to Deely and Nesh-Nash (2014), citizens cannot be expected to engage in the constitution-making process if they are not given basic information about how it will be conducted: what it is, who is responsible, how much time has been allocated, the project stages, who will be invited to participate, and how the content produced will be used.

Brant et al. (2011) highlight the importance of education: A well-designed scheme for public participation should provide people with digestible civic education material through a variety of appropriate channels and products tailored to people's interest.

For the second and the third phases, social media online forums are foreseen so as to facilitate people to express their interests and concerns and to question one another, respond to criticisms raised, and critique the arguments and proposals of others. Specifically, for the third phase including a Citizens' Assembly for a new Constitution as suggested by the international bibliography and empirical data analysis will be included processes for soliciting citizens' input at three levels: (a) passive monitoring of public opinions about general issues (system of government, unitary or federal state structures, etc.) as expressed in debates, public discussions, using online and traditional media; (b) consultation with interest group representatives such as civil society organizations, professional associations, trade unions, cultural associations and rights groups, and so forth, about specific provisions; and (c) a process of actively soliciting individual citizens' and interest group submissions through a formal dedicated mechanism for submissions to the assembly (Deely and Nesh-Nash 2014).

Terms and Conditions for Efficient and Effective Participatory Constitutional Design

The Greek experience highlights the importance of involving people when a constitution is initially conceived and crafted, much more than in the debate phase, when legislators and assemblies are discussing document drafts that have already been submitted, or during ratification, when the public either approves or rejects a new Constitution in a referendum. An inclusive drafting process has lasting benefits for democracy. According to Eisenstadt et al. (2014), the drafting stage matters more because incumbents at the time of drafting know in advance whether they want to grab power by codifying benefits for themselves, or whether they must concede to citizen involvement that will fortify the nation's democratic fabric.

¹² Available in Greek at <http://syntagma.politeia2.org/toolkit/>.

Key issues that were raised on the first phase of the Syntagma 2.0 project on how to achieve the wider possible participation included (i) civic motivation; (ii) incentives for participation of all interested parties of society; (iii) relevance and quality of the contributions received; and (iv) monitoring spam and sabotage attempts. Concrete advice on do and don'ts is included in the open toolbox produced. Currently, the Syntagma 2.0 team is working on positive and negative lessons learnt in order to start up the second phase of the project. What is made clear so far is that a combination of activities in physical and virtual space can enable citizens to view constitutional challenges from a big-picture perspective. Participatory methodologies make feasible the co-production and co-creation processes in transdisciplinary and cross-sectoral target groups such as the participants in the phase A participatory workshops. They enable consensus building while releasing civic creativity and civic imagination and last but not least facilitate the exploration of civic collective intelligence.

Key success factor for such bottom-up initiatives also includes the enhancement of trust among all those involved, the formulation of conditions for peer learning that will increase the efficiency while working on such transformative projects needed in order to navigate the chaos that systemic change initiatives such as the creation of a new Constitution by the people entails. Those issues to be considered can be identified in every public participatory design effort.

Under this angle, technologies will affect different groups in different ways and to different degrees at the different stages to be used. The use of new technology should therefore respect social and cultural norms in each country in question. New technologies are simply another tool to reach a wider audience, potentially at lower cost and in less time than other traditional methods.

Concluding Remarks

Participatory constitutional building is more and more considered as a response to civic discontent, political apathy, structural democratic deficiencies, and political mistrust. There are plenty of positive examples of such top-down and also bottom-up projects. There is also evidence that new technologies and social media can increase participation in and the perceived legitimacy of constitutional processes as they have the potential to help constitution makers engage with the public and civil society and help the population at large mobilize, network, and advocate for specific constitutional issues. Or they are simply another tool to reach a wider audience, potentially at lower cost and in less time than other traditional methods. Key issues on how to coordinate the citizens such as (i) motivation; (ii) incentives to participate; (iii) relevance and quality of the contributions; and (iv) monitoring spam and sabotage attempts are also issues to be considered and can be identified in every public participatory design effort.

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Citizen Observatories: Concept, Opportunities and Communication with Citizens in the First EU Experiences

Filipe Montargil and Vitor Santos

Abstract This chapter discusses the emerging concept of Citizen Observatories (COs), explores the opportunities it represents for public authorities to go beyond incremental bureaucratic innovation and presents the first generation of European-funded experiences, held between 2012 and 2016. The concept of CO implies, according to the existing definitions, an open and shared information system dedicated to the collection of data on the environment and natural resources, using ICT, and the volunteer participation of individuals in data collection. The EU has adopted a more specific concept of CO in the projects funded, so that the resulting information complements existing earth observation systems (including the European Copernicus satellite programme). In the 2012–2016 period five CO projects have been funded by the EU, covering different areas: natural waters monitoring, odour monitoring, air quality monitoring, flood risk management and a platform for citizen science surveys. These COs allowed to develop and test the concept's implementation, although the societal impact is still very limited, involving a reduced number of users. These projects have, however, established a very valuable set of resources, knowledge and expertise. This is an emerging field with interesting perspectives and possibilities. Although there is an economic rationale behind it (lowering the cost of in situ observation networks), it encloses the possibility of using ICT in the creation of a relation between public authorities and citizens that can produce a valuable return for citizens.

F. Montargil (✉)

School of Communication and Media Studies (ESCS) and Lisbon Institute
of Communication and Media Studies (ICML), Lisbon, Portugal
e-mail: fmontargil@escs.ipl.pt

V. Santos

NOVA Information Management School (NOVA IMS) and NOVA IMS Research
and Development Center (MagIC), Lisbon, Portugal
e-mail: vsantos@novaims.unl.pt

The Emerging Concept of Citizen Observatories

The concept of Citizen Observatories (COs) is emerging and started to assume public relevance mainly since the 2010s. We proceed in this chapter to a discussion of this concept and its implementation, in the first EU pilot projects. On this first section we discuss the concept and propose a definition based on previous approaches and on the acception adopted by the European Union (EU), for its pilot projects. In a second section we discuss the justification and the relevance of the concept, from an institutional perspective (EU, national and local authorities). In the third section we offer a brief overview of its opportunities and areas of application, for citizens. In the fourth section we present the main features, from the user's perspective, of the five pilot projects funded by the EU in the 2012–2016 period. In the fifth section we summarize and discuss some central elements regarding the EU pilot projects' communication with citizens. In the sixth section we present the conclusions and several alternatives to take advantage of the development of COs, at the present stage.

The concept of citizen-enabled observatories of the environment and of natural resources through the use of information and communication technologies (ICT), usually referred to as Citizen Observatories (COs), gathered the conditions to emerge mainly with the development of community-based environmental monitoring (CBM) (MSH and UNICEF 1998; McKenzie et al. 2000; Bliss et al. 2001; Connors et al. 2001) and, later, with volunteered geographic information (VGI), allowing private individuals to participate directly in the collection of geographic information, using equipment and sensors, as opposed to a task carried exclusively by public agencies (Goodchild 2007; Craglia 2007).

Some definitions of COs have been proposed. Morandi et al. (2013) explicitly relate the concept to community crowdsensing, where a group of users is involved in environmental monitoring activities (like air pollution or radiation levels, for instance). As argued, “users then collectively become a Citizen Observatory and the data can be collected, collated and published forming a Virtual Observatory” (idem: 202). This concept also implies open publication of data, allowing other individuals and institutions to “incorporate the data in their analysis or develop innovative applications by mashing the data with other datasets” (idem: *ibid.*), maximizing its social benefit. Liu et al. (2014) see COs as supporting community-based environmental governance and define them as “the citizens' own observations and understanding of environmentally-related problems, and in particular as reporting and commenting on them” (idem: 4). Although it is not explicitly mentioned in the previous definition, it is considered that COs imply the use of technological solutions and ICT, both in gathering and in sharing information (through sensors, mobile apps or web portals) and in its participatory governance (for instance through social networking sites). Lanfranchi et al. (2014: 146) define COs as “a method, an environment and an infrastructure supporting an information ecosystem for communities and citizens, as well as emergency operators and policymakers, for discussion, monitoring and intervention on situations, places and events”. Similarly

to Liu et al. (2014), although it is not explicitly stated in the definition, the use of ICT is fundamental in setting the background for the operation of COs, with Web 2.0 services and web applications introducing “(...) new opportunities for citizen co-participation in knowledge creation” (Lanfranchi et al. 2014: 146). Degrossi et al. (2014: 2) building on the Brazilian experience in flood risk management propose that a CO is understood as a “(...) software platform in order to obtain volunteered information about a specific topic through different devices (e.g. web browser, mobile application and SMS), and allow their visualization. In this manner, a CO can be used to share information about flood risks, such as the water height in the riverbeds or flooded areas”.

All these definitions seem to share at least two common features: (i) a somehow open and shared information system dedicated to the collection of data on the environment and on natural resources, using ICT; and (ii) the volunteer participation and involvement of individuals in data collection.

The European Union (EU) closely follows the possibilities of COs and has started to fund pilot projects in 2012. EU adopts in these projects a more specific concept of COs (European Commission 2015: 63), directly related to earth observation systems (the Copernicus satellite programme, in the European case).

Earth observation systems use satellites for the observation of variables related to earth, such as land surface, biosphere, atmosphere or oceans, usually in a long-term perspective¹. This can be done, for instance, to monitor the evolution of human use of land or to understand key components of the climate system and their interactions². Besides information gathered through satellites, these systems can also use and integrate in situ information, such as ground-based, airborne and ship- or buoy-based observations and measurements. In situ data are essential in earth observation systems, being integrated into forecasting models, providing for the calibration and validation of space-based information and contributing to fill gaps in information from satellites³.

In the concept adopted by the EU a Citizen Observatory is a subsystem that uses devices (mostly smartphones) operated by citizens to gather information used as in situ input from an earth observation system. A Citizen Observatory, according to this concept, must therefore rely on information gathered by citizens, essentially through what we can call a mobile crowdsensing strategy (Ganti et al. 2011; Angelopoulos et al. 2015), but it is also intended that these data “should complement those from existing systems (e.g. the Copernicus Land Service) and surveys, including national surveys”⁴. For this reason, COs funded by the EU are required to cooperate with the global repository of information from earth information systems,

¹https://www.earthobservations.org/g_faq.html.

²NASA started to conceive and develop its own Earth Observing System (EOS) in the 1980s that began to take shape in the early 1990s. In Europe, the Copernicus system started to take shape in the late 1990s, with the first services being available since the 2010s.

³https://en.wikipedia.org/wiki/Copernicus_Programme.

⁴http://cordis.europa.eu/programme/rcn/664594_en.html.

the Global Earth Observation System of Systems (GEOSS), and “data should be made available through the GEOSS without any restriction” (European Commission 2014: 3).

Justification and Relevance of the Concept

Data gathered through earth observatories can be used for several purposes. The European project Copernicus (based on a partnership between the European Union, ESA and the member states), for instance, addresses six main thematic areas: land monitoring, marine environmental monitoring, atmosphere monitoring, emergency management, security and climate change.

This information is publicly available⁵, being potentially useful for national governments, regional or local authorities, private companies and individual citizens, in monitoring activities and supporting decision-making processes. In the Copernicus project, for instance, it is stated that “considered as ‘public goods’, a full and open access to these services will be organized. Data from the Sentinels [satellites] will be free of charge to users”⁶.

National governments and regional and local authorities have, therefore, the opportunity to use free information from earth observation systems, integrating it into their regular and already established routines and systems, according to their legal duties and powers.

One of the critical issues regarding earth observatories is, naturally, financing the initial and ongoing operating costs. Copernicus cost between 1998 and 2020 is estimated at 6.7 billion euros⁷. A part of this cost relates to the in situ information. Creating and maintaining a network of ground stations covering all the extension of the European territory, for instance, is logistically demanding and expensive.

A citizen-enabled earth observatory represents an opportunity to lower these costs—or to attain a wider reach, maintaining the costs. The European Commission acknowledges: “in situ monitoring systems are very costly and Citizens Observatories have the potential of providing complementary information by thousands of mobile sensors at a much lower cost” (2014: 11).

If a relevant number of citizens are mobilized to gather and share information with an earth observation system, through forms and practical and affordable sensors, connected through devices they use in their daily life (mostly smartphones), we can benefit from a reliable network with lowered costs:

⁵<http://www.copernicus.eu/main/data-access>.

⁶<http://www.copernicus.eu/main/faqs>. It must be noted, however, that there are other relevant information sources. GEOSS (the Global Earth Observation System of Systems), for instance, shares information from a set of earth observation, information and processing systems (http://www.geoportal.org/web/guest/geo_home_stp).

⁷https://en.wikipedia.org/wiki/Copernicus_Programme.

it is clear that Citizens' Observatories have a very positive cost-benefit ratio. While in situ networks are very costly to setup and maintain, citizens can now provide a far denser network of local, up-to-date and near-real time observations using their personal devices. These data can be automatically uploaded into data repositories on the Internet, facilitating its analysis and comparison with official data. (idem: 15)

On the other side, a citizen-enabled earth observatory also represents the opportunity to ensure that the information shared by the observatory is effectively used by citizens and useful, in their lives.

One of the key issues about Citizen Observatories is mass participation. For a specific sensor or a specific type of variables, if the goal is to establish a reliable network with good territorial coverage (with high granularity), we are probably considering a dimension of thousands of users, for each country. Considering several types of variables and sensors, at the European level, probably a network of tens or even hundreds of thousands of participants may be required.

Since participation in Citizen Observatories is naturally voluntary, depending on the citizens' decision and willingness to gather and share information, citizen-enabled earth observatories become an interesting societal and political challenge. User engagement and effective communication with the public become, in this context, a central part of the challenge and a key issue to its success.

Opportunities and Areas of Application

It is argued here that Citizen Observatories are also an opportunity for government informatization. Applications and services offered by the public administration, using this concept, can give citizens valuable information, going beyond bureaucratic incremental innovation. As many authors argue, information and communication technologies are often used in government and public administration services with no significant return for citizens, or strengthening the role of state bureaucracies and helping public authorities fulfilling its extractive function—and not so much a distributive function (Bekkers and Homburg 2007; Yang and Rho 2007; Montargil 2010; Paulin 2015 and Anthopoulos et al. 2016, to mention a few).

Taking advantage of a large European infrastructure, citizens' observatories have the opportunity to become a source of useful information and services for the citizens, contributing at the same time to fulfil the public administration goals and objectives.

Some areas of application are presented here, using the social *personas* approach. This approach contributes to shorten empathy gaps (Van Boven et al. 2000; Van Boven and Loewenstein 2005) and better understand user motivations and behaviours. These scenarios only intend to illustrate possible areas of application for the concept. They must, therefore, be understood as illustrative—not as an exhaustive description of areas of application.

A *persona* used to illustrate these possible areas of application is Alessandra. Alessandra is an Italian citizen, 52, living in Milan and travelling frequently, due to

professional and familiar reasons. Alessandra suffers from pollen allergies, occasionally breathing difficulties and asthma. She made a small investment and bought a sensor that measures air quality. This compact and mobile sensor is connected to her smartphone and measures air quality on a regular basis. Using her smartphone's Internet connection, Alessandra shared publicly the sensor's information and enrolled in a citizens' observatory dedicated to air quality and pollution monitoring. Besides sensor information (objective measurements), Alessandra also shares regularly with the citizens' observatory her own evaluation of air quality and its impact on her allergies and breathing condition (subjective evaluations).

Alessandra has, through the citizen's observatory mobile application, access to the history of her own measurements, to information from other users (in Milan and in other cities where she is travelling to), including objective and subjective measurements, and receives risk assessments, alerts and other meaningful content according to her preferences, through the mobile app—when it is particularly relevant information, also through email. Simultaneously, this in situ information is articulated with satellite information, in order to refine algorithms and analysis based on satellite imagery.

This *persona* illustrates a simple scenario, based on air quality monitoring. But we can consider many different scenarios, focusing on water quality or soil quality variables, involving actors such as interested citizens, amateurs, activists or professional users (in either the private or public sector). We can also consider other areas, such as land monitoring activities or security management, for instance. But this example gives a useful reference, to understand how Citizen Observatories can be meaningful for citizens.

European Experiences

We briefly present in this section the first experiences of Citizen Observatories financed by the European Commission. A total of five projects were financed, in the 2012–2016 period: Citclops, COBWEB, OMNISCIENTIS, WeSenseIt and CITI-SENSE. The presentation is made trying to place in the centre the citizen's perspective—the way they can participate, the information they have access to and how they can get involved.

Citclops, the Citizens' Observatory for Coast and Ocean Optical Monitoring, is dedicated to water monitoring (EC-FP7 Programme, grant agreement 308469), in a consortium led by the Barcelona Digital Technology Centre (Fundació Privada Barcelona Digital Centre Tecnològic), in Spain⁸. Citclops allows classifying natural waters (in rivers, estuaries, shore areas, open sea, etc.) on their colour.

⁸<http://www.citclops.eu>. See also <http://www.eyeonwater.org>, for data collection and dissemination, and <http://www.1000001labs.org/project/citclops/>, for the project deliverables.

Through a georeferenced mobile app, EyeOnWater, available for both Android and iPhone, the user can take pictures, pointing the camera at the water surface and following a simple set of rules. The user takes a picture, selects according to his perception the correct water colour in a scale, representing a level of the Forel-Ule (FU) index (an index that indicates the proportion of microscopic algae, sediment and dissolved organic material in the water) and submits the information. The system will also later calculate automatically an FU index value, from the image.

At least at the present time, access to the information regarding the measurements made by users is possible only through the website www.eyeonwater.org. The mobile app does not include access to this information.

Besides water colour, this website also shares a large dataset of georeferenced past observations on water clarity. Water clarity is measured using a Secchi disc—a white disc that is slowly lowered down in the water until it is no longer visible (this depth is considered as a measure of water transparency).

Besides the website, Citclops also made use of social networking sites (SNSs), setting up Facebook, Twitter and Google+ communities.

OMNISCIENTIS, the “Odour MoNitoring and Information System based on CltizEN and Technology Innovative Sensors” (grant agreement 308427), focused on odour monitoring⁹. Spacebel, a Belgian space systems and software engineering company, leads this consortium.

In this case, the project was based on three locations: Brussels, Virton and Angy, especially in communities that are close to activities that can imply odour nuisance (industry, farming, wastewater plants and chemical plants). Users from these areas can access a website form¹⁰ where they register their perception on the odour type (nominal scale, with five options), odour intensity (ordinal scale, with three options) and odour discomfort (ordinal, with four options), along with the location, date and time of the observation.

A mobile application was developed (OdoMap, an Android application available in French) and is still available, at the Google Play store. This application allows to register odour perceptions using a process similar to the website.

Registered users seem to have access, from the available information (user registration of new users seems now closed, through both the website and the mobile app), to the history of their own subjective evaluations of odour perception—but not to other users’ evaluations.

In this case, citizens can only contribute to subjective measurement. Objective evaluation is centralized through the installation of sensors (“e-noses”, electronic noses for odour classification) on the locations with potential odour nuisance impact. As far as it was possible to confirm, results of objective measurements are not available to registered users, through the website or the mobile app.

No use of SNSs was found, in OMNISCIENTIS.

⁹<http://www.omniscientis.eu>.

¹⁰<http://omniscientis.spacebel.be:8000/AddAnonymObs>.

CITI-SENSE is a Citizen Observatory dedicated to outdoor air quality monitoring (grant agreement 308524), in a consortium coordinated by NILU, the Norwegian Institute for Air Research¹¹. The project started in October 2012, and its conclusion is expected by the end of September 2016.

The project includes pilots on eight cities (Barcelona, Belgrade, Edinburgh, Haifa, Ljubljana, Oslo, Ostrava and Vienna), but allows users from other locations to use the available applications and access data.

CITI-SENSE allows citizens to monitor objectively air quality through a personal air monitoring toolkit. This toolkit includes (i) a mobile sensor unit (measuring temperature, relative humidity, nitrogen monoxide, nitrogen dioxide and ozone, with georeferenciation), (ii) an Android app to connect to the sensor unit allowing to read and upload data to a server and (iii) a computer application for sensor management.

The user can carry the sensor unit on the outside of a jacket or on a belt, for instance. The user's android smartphone can then be paired with the sensor via Bluetooth, reading data from the sensor and storing it in the CITI-SENSE platform. The measurements give an indication of pollution levels and provide information about changes (although they are not directly comparable to air quality monitoring by the authorities).

Citizens can also be engaged through subjective evaluation of air quality, answering questionnaires. There is an online air quality perception questionnaire, available through the website, regarding each participating city, and a smartphone georeferenced app, CityAir (Android and IOS), with a "flash" survey (one or two questions). This application allows citizens to report on how they perceive air quality, rating the air quality on their location using an ordinal scale with four alternatives: green (meaning the air quality is very good), yellow (good), orange (poor) and red (very poor). If the user selects yellow, red or orange, a second question appears, about the origin of the pollution (traffic, industry, etc.). CityAir also allows to access subjective evaluations of other users.

Other activities have been developed, including fixed stations in public locations or in schools (measuring indoor air quality), with the resulting measurements also available through the website.

A great deal of information is available, in the case of CITI-SENSE (subjective and objective evaluations). Most of this information is available through one single web page, gathering the several types of data from the different locations¹². Besides this web page, there are other pages and applications available, giving access to the different types of available data.

CITI-SENSE has developed several SNS platforms, including Facebook, Twitter, LinkedIn, a YouTube channel and city-based Facebook pages, in the cases of Barcelona, Belgrade, Ljubljana, Oslo and Ostrava.

¹¹<http://co.citi-sense.eu> and <http://www.citi-sense.eu>.

¹²<http://srv.dunavnet.eu/new/citisense/OutdoorDataPortal/> or, with a slightly different menu layout, <http://co.citi-sense.eu/CitizensObservatoriesToolbox/Data.aspx>.

WeSenseIt is a CO dedicated to water level and flood monitoring (grant agreement 308429), in a consortium led by The University of Sheffield¹³. WeSenseIt allows users to (i) share information before and during floods (such as flood awareness alerts or closed roads due to flooding, for instance), (ii) access information on these issues shared by other users and, also, (iii) access information gathered and regularly updated through sensors.

If the previous COs can be considered as oriented to regular monitoring of natural resources (natural waters colour and transparency, in the case of Citclops; odour nuisance, with OMNISCIENTIS and air quality, with CITI-SENSE), WeSenseIt must be considered as focused on risk and emergency management. This can probably imply a different assessment of information value and opportunity by users, according to the frequency of risk situations.

The project has selected three case studies, located in Doncaster (UK), Delfland (Netherlands) and Vicenza (Italy).

The users have access to an Android app, with two versions (WeSenseIt UK, in English, and WeSenseIt Italia, in Italian). There are some substantial differences between the two versions, but in the English version users can *share* information about (i) Flooding and flood risk or (ii) Community life; alternatively, they can *get* information on (i) Flooding and flood risk, (ii) Community life or (iii) Sensors.

To share information through a Flooding and flood risk report, the user has a form where he identifies the title of the report, writes a brief description, identifies the category (flood awareness, blocked road, closed bridge, etc.), the date, the time and the location and he can also add a photo or a news URL. If the user selects to share information through the option “Community life”, he will access a form to share a post through the application, with fields for title, description, date, time and location.

When consulting information shared by other users, the options “Flooding and flood risk” and “Community life” give access to the list of previous reports and posts. The option to get information on “Sensors” gives access to a map with georeferenced information from sensors (covering hundreds of sensors, exclusively in England’s territory). WeSenseIt shares information from different kinds of sensors, including monitoring of air humidity, air temperature, distance to water surface, rainfall, sea water level, soil moisture, soil temperature, water level and water speed, from three different sources: UK’s Environment Agency (a large number of sensors spread throughout the territory), a UK and Ireland tidal prediction service (TideTimes.co.uk) and WeSenseIt’s own sensors (both around the Doncaster area).

WeSenseIt allows, therefore, registering information through two different sources: sensors located in England and forms that citizens can use to describe a relevant situation. We consider both as objective measurements, since the form does not include questions on the user’s subjective perception (such as the perception of the risk associated with a flood warning, for instance), but always tries to assess objective variables (probably because the project is focused on risk

¹³<http://wesenseit.eu>.

management and not on quality monitoring, as the previously analysed COs). In some cases users share alerts with some underlying subjective evaluation (such as an “yellow alert for rain”, for instance), but the app and its forms have not been thought and developed to register perceptions—this is more a decision from the user, to include it in the description, than an available option in the app.

WeSenseIt also uses, besides its website and mobile apps, Facebook and Twitter, to disseminate information and involve the community.

COBWEB, the Citizen OBservatory WEB, is a CO developed under grant agreement 308513 by a consortium led by EDINA, a UK national data centre integrated in the University of Edinburgh¹⁴.

This CO allows other institutions or organized groups to develop citizen science surveys through Android mobile devices. For this, COBWEB has developed a series of software applications, allowing to develop the questionnaire (Generic Application Designer, also known as Survey Designer), to implement the survey and make it available to final users through an Android smartphone (Generic COBWEB Application, also known as Fieldtrip Open), to storage the survey information (Storage Middleware, also known as PCAPI) and to visualize georeferenced information (Observation Viewer).

So, if a group of people intends to develop a survey on a specific citizen science domain, they can use the software resources made available through COBWEB. The project has decided to focus on a partnership with the UNESCO's World Network of Biosphere Reserves, as a test bed for its surveys—but the software applications are available to any user intending to test the concept and develop its own survey.

The surveys are available through the COBWEB website, and they must be installed in an Android smartphone using the file downloaded from the website (no COBWEB applications were found in the Google Play store).

In one of the available surveys, for instance, visitors of the Snowdonia National Park (Wales) are invited to record on their mobile devices the distribution of an invasive plant, Japanese Knotweed, by drawing a polygon representing an infested area. In another survey, individuals can register information regarding the butterflies and their nectaring plants in a Wales village, Penparcau. A total of 127 surveys are displayed in COBWEB's website.

COBWEB can be considered, compared to other CO projects, as having a more “business-to-business” (B2B) approach. Instead of developing mainly projects that involve directly the final citizen users (like the previous COs analysed), COBWEB has developed a set of tools that can be used by other COs and citizen science projects, in developing and managing their own surveys.

COBWEB also uses, in the relation to citizens, several SNSs: Twitter, YouTube, Google+ and Slideshare.

¹⁴<https://cobwebproject.eu>.

Communication with Citizens

These COs established a relationship with citizens not only with different areas of focus, but also with some differences in communication strategies. In Table 1 we present a summary on the way these projects involve objective and subjective evaluation of variables and how they deal with information collection and dissemination.

All COs imply, therefore, the observation of objective variables by citizens (with the exception of OMNISCIENTIS, dedicated to odour nuisance, where objective measurements are managed centrally). Also, all COs dedicated to monitoring activities (Citclops, OMNISCIENTIS and CITI-SENSE) involve subjective evaluations by users.

A difference between all-inclusive communication strategies and more focused communication strategies can be considered, in this analysis. On the one side, WeSenseIt adopts a rather specialized and focused strategy, heavily based on mobile apps, since no CO information is collected or shared through the website: the only way to collect and disseminate information is through a mobile app (Android, in this case). On the other side of this continuum, we can identify CITI-SENSE, with a rather all-inclusive strategy, using the website, Android and IOS apps, both to collect and to disseminate information. OMNISCIENTIS communication seems at first sight closer to an all-inclusive strategy, allowing to use both the website and a mobile app to collect and to share information, but some relevant limitations arise in its implementation: citizens do not participate in objective evaluation (likely due to the focus on odour monitoring, technically a challenging area); non-registered users have no access to information (and it was not possible for the authors to register, through either the website or the Android app); it seems like registered users only have access to their own history of observations, and finally, there is no IOS app available (therefore covering a smaller percentage of potential users). Regarding Citclops, it only allows collection of information through the mobile apps and only disseminates through the website (in what we could call a transmedia strategy).

One interesting issue consists in the fact that mobile apps seem more relevant to collect than to disseminate information, in Citclops and OMNISCIENTIS. Citclops uses Android and IOS apps to gather information, but dissemination only occurs through the website. In OMNISCIENTIS it is possible to participate in information collection using the Android app, but dissemination is limited to registered users—that seem to have access only to their own subjective observations (and registration seems closed, for citizens not involved in the pilot case studies).

If we consider the collection of information as an extractive function that the CO performs in its community of users and dissemination of information as a distributive function, it seems reasonable to say that these projects adopt a communication strategy for their mobile apps more focused on the extractive function than on the distributive function.

Table 1 Objective and subjective evaluation, collection and dissemination of information in European COs, 2012–2016

	Objective evaluation	Subjective evaluation	Collection of information (input)		Dissemination of information (output)			
			Website	Android app	IOS app	Website	Android app	IOS app
CitlopS (Natural waters monitoring)	Yes (Water colour: automatic FU index)	Yes (Water colour: subjective FU index)	–	Yes EyeOnWater	Yes EyeOnWater	Yes (Colour: subjective and objective Transparency: dataset of past observations)	–	–
OMNISCIENTIS (Odour monitoring)	– (Centralized: “electronic noses” in selected facilities)	Yes	Yes	Yes (FR) OdoMap	–	Yes, limited (Registered users only, history of own subjective observations)	Yes, limited OdoMap (Registered users only, history of own subjective observations)	–
CITI-SENSE (Air quality monitoring)	Yes (Personal air monitoring toolkit—PAMT)	Yes (i) Online air quality perception questionnaire (ii) CityAir app	Yes Online air quality perception questionnaire (“Extensive” questionnaire)	Yes (Subjective: CityAir, with “flash” surveys; Objective: PAMT, through sensor pairing)	Yes (Subjective: CityAir, “flash” surveys)	Yes (Objective and subjective)	Yes (Subjective: CityAir)	Yes (Subjective: CityAir)
WeSenseIt (Flood risk management)	Yes (Sensor observations and human observations)	–	–	Yes WeSenseIt Italia and WeSenseIt UK (“Share information about” options on menu)	–	–	Yes WeSenseIt Italia and WeSenseIt UK (“Get information about” and “Sensors” options, on menu)	–
COBWEB (Platform for citizen science surveys)	Depending on survey	Depending on survey	–	Yes	–	–	Depending on survey	–

Although this can happen due to technical and implementation limitations (these COs intend mainly to demonstrate the concept, and they are still in an early stage of development), it can represent an unbalanced participation/return ratio for CO users, between how they value their participation (time spent learning about the CO, looking for the app, installing it, figuring out how it works and starting to use it) and their return (such as access to valuable and relevant information, participating in a community or fulfilling a duty as citizen, for instance), affecting their willingness to use the COs mobile app.

This can turn out to be a relevant issue since one of the hypotheses to consider is that the distributive function relates positively to the perceived return users get from participating in a CO—or, to put it another way, it can be one of the relevant variables to explain citizen engagement in COs. Making sure citizens get the maximum possible return through the channels they use in their relation with COs can be, therefore, a critical success factor.

Citizen Observatories face, obviously, very relevant technical challenges. But they also face critical societal challenges. Engaging and involving citizens, making them participate in activities and making sure these citizens receive in return valuable information is a clear societal challenge for COs, since they need to attract a relevant number of citizens in order to justify their existence and to thrive.

Awareness is, therefore, a critical issue for COs. One of the ways to reach citizens is through the use of social networking sites (SNSs). The analysed COs clearly value this communication dimension: all projects, with the exception of OMNISCIENTIS, used SNS as a way to communicate with users and potential users.

Table 2 presents a summary of some basic public metrics on engagement and citizen involvement.

The metrics presented in Table 2 are rather limited, in terms of interpretation (for instance, Facebook page likes are not necessarily a good variable to analyse engagement), but they are publicly available and give a general idea of these projects' ability to engage users and effectively communicate with the public.

The first generation of European COs used several SNS, including Facebook, LinkedIn, Twitter, YouTube, Google+ and Slideshare. CITI-SENSE can be considered as the most relevant example of SNS use: not only the project used Facebook, LinkedIn, Twitter and a YouTube channel, but several of the city-based projects developed their own SNS resources: Barcelona (Facebook and Twitter) and Belgrade, Ljubljana, Oslo and Ostrava (Facebook). It is interesting to note that CITI-SENSE, the CO closer to an all-inclusive strategy in the usage of website and mobile apps to collect and disseminate information (meaning it uses the website and mobile apps both to collect and to disseminate information), is also the project with a more significant use of SNS. Several factors can account for this, which will not be discussed here. OMNISCIENTIS, on the other hand, did not use any SNS, according to the available sources.

Although four of the five projects made extensive use of SNS, it cannot yet be considered that COs reach a vast number of citizens. The Android app downloads varied between the '10 or +' and the '500 or +' categories, showing significant

Table 2 Android app downloads and SNS usage by European COs, 2012–2016

	Android app (Downloads)	Facebook	Twitter		YouTube		LinkedIn (Members)	Google+ (Followers)	Slideshare (Followers)
		(Page likes)	(Followers)	(Likes)	(Videos)	(Average visualizations)			
Citclops	500 or +	79	195	67	–	–	–	28	–
OMNISCIENTIS	10 or +	–	–	–	–	–	–	–	–
CITI-SENSE	500 or +	344	92	56	5	163.6	69	–	–
CITI-SENSE (Barcelona)	–	100	454	966	–	–	–	–	–
CITI-SENSE (Belgrade)	–	40	–	–	–	–	–	–	–
CITI-SENSE (Ljubljana)	–	116	–	–	–	–	–	–	–
CITI-SENSE (Oslo)	–	152	–	–	–	–	–	–	–
CITI-SENSE (Ostrava)	–	52	–	–	–	–	–	–	–
WeSenseIt	UK: 50 or + IT: 100 or +	72	264	6	–	–	–	–	–
COBWEB	NA	–	373	403	6	184.8	–	4	2

Values as of 30 July 2016. No publicly available information on IOS apps number of downloads was found
NA not applicable (download exclusively through website)

differences in app downloads (although these numbers do not include IOS app users and Android app users that didn't use Google Play—receiving the app directly from the project team, for instance). The project with the larger number of Facebook page likes reached 344 likes (CITI-SENSE). Citelops and WeSenseIt reached, respectively, 79 and 72 page likes. Regarding Twitter, CITI-SENSE Barcelona stands out from the rest of the cases, attaining 454 followers and 966 page likes. In the case of YouTube channels, CITI-SENSE reaches an average number of 163.6 visualizations for each video and COBWEB an average of 184.8 visualizations.

Considering these are multi-annual projects with large consortiums and multi-million budgets, aiming to demonstrate the concept and contributing to its dissemination, these numbers still show a very limited impact. One possible reason for this might be that these first-generation projects were still very concerned with technical challenges. But societal challenges will probably assume a more relevant role in the following stages.

The next generation of COs to be developed between 2016 and 2020 with European funding represents an opportunity to tackle these issues. These new COs will represent a total investment of around 20 million euros and have already been announced (Lambert 2016: 9): GROW, coordinated by the University of Dundee (UK)¹⁵; LANDSENSE, coordinated by IIASA, the International Institute for Applied Systems Analysis (Austria)¹⁶; SCENT, coordinated by ICCS/NTUA, the Institute of Communications and Computer Systems of the National Technical University of Athens (Greece),¹⁷ and Ground Truth 2.0, coordinated by UNESCO-IHE Institute for Water Education (Netherlands)¹⁸.

Conclusions

The goals of this chapter consist mainly in presenting the emerging concept of Citizen Observatories (CO) and the first generation of European-funded experiences, held between 2012 and 2016, and also to explore the opportunities it represents for public authorities to go beyond incremental bureaucratic innovation.

As we have seen, the concept of CO implies, according to the existing definitions, an open and shared information system dedicated to the collection of data on the environment and natural resources, using ICT, and the volunteer participation of individuals in data collection. The EU has adopted a more specific concept of CO in the projects funded, so that their information complements existing earth observation systems (including the European Copernicus satellite programme).

¹⁵http://cordis.europa.eu/project/rcn/203271_en.html.

¹⁶http://cordis.europa.eu/project/rcn/203269_en.html.

¹⁷http://cordis.europa.eu/project/rcn/203260_en.html.

¹⁸http://cordis.europa.eu/project/rcn/203387_en.html.

In the 2012–2016 period five CO projects have been funded by the EU, covering different areas: natural waters monitoring, odour monitoring, air quality monitoring, flood risk management and a platform for citizen science surveys. These COs allowed to develop and test the concept's implementation, although the societal impact is still very limited, involving a reduced number of users. These projects have, however, established a very valuable set of resources, knowledge and expertise.

It is clear that COs are an opportunity to offer citizens meaningful information, in their day-to-day life, taking also advantage of the European investment in the Copernicus programme and its freely available information. This is an emerging field with interesting perspectives and possibilities. Although there is an economic rationale behind it (lowering the cost of in situ observation networks), it encloses the possibility of using ICT in the creation of a relation between public authorities and citizens that can produce valuable return for citizens. This represents many opportunities for public administrations (at national, regional or local level) or other stakeholders (such as private companies, NGOs or associations, for instance), to offer relevant services to citizens, going beyond a simple bureaucratic relation. This must be done taking into consideration a balance between authorities' fears and citizens' expectations, as well as the cultural and social specificities in each context (Rubio-Iglesias 2014: 22).

Taking advantage of the opportunities arising from the development of Citizen Observatories can be done in several ways.

The first would be to take advantage of the first European-funded COs. These projects share publicly information and resources that we can use to set up an independent CO, with a much lower effort. CITI-SENSE shares online resources that can be used to create a CO monitoring air quality in your city or community (Bartonova 2016: 16–21). Citclops shares information that can be used to extend its observations to other coastal areas. COBWEB shares resources that can be used to develop citizen science projects in your community. Additionally, these resources have already been tested before, ensuring the next projects will not have to start from scratch. If necessary, it is always possible to get in contact with these teams, although the formal projects are already concluded. This strategy can probably represent a shorter cycle in the implementation of a CO.

A second way to take advantage of this opportunity is to follow the implementation of the next generation of EU-funded COs, in the 2016–2020 period. Most certainly these COs will benefit from the existing knowledge and experience, taking it further. This will probably imply a longer implementation cycle, as COs will gradually share information during their own development and implementation, but it can be an effective way to familiarize with the concept and with state-of-the-art projects.

A third way is to get in touch with the vast community of experiences that relate to this area. Community-based environmental monitoring (CBM), mobile crowdsensing (MCS) and citizen science are central keywords in this approach. We can think of it as a flea market strategy: it is very likely we find projects and partners that somehow fit our interests, provided we spend enough time to give a good look around.

Another way to access information and support about COs is following or contacting directly the European Commission Executive Agency with the responsibility of managing the CO projects, EASME—Executive Agency for Small and Medium-sized Enterprises¹⁹.

As the European Commission mentions:

these activities are still largely funded by research. However, it is clear that there is a need for evolving from short-term project-based activities towards sustained operational systems. Building on existing local systems may be the key for a long-term sustainability of the Citizens Observatories, as it turns out from the experiences of current projects. (European Commission 2014: 15)

This is not just an opportunity for citizens with the profile and interests of Alessandra, the *persona* we sketched at the beginning of the chapter to illustrate the opportunities of Citizen Observatories: it is an opportunity for an immense number of European citizens.

In a few years from now we can look at Citizen Observatories and contemplate a flourishing area. Or we can see it as an obsolete concept, as so many others in ICT, and look back at our efforts to develop and demonstrate the concept as rather naïve. We believe this depends largely on the way we are able to involve, besides the European Commission and the academic community (already working in the concept demonstration), also government and public administrations, as well as citizens, grassroots movements, associations and NGOs.

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¹⁹<https://ec.europa.eu/easme/en>.

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Part IV
Mass Online Deliberation

What Do the People Think?: E-Petitioning and Policy Decision Making

Catherine Dumas, Teresa M. Harrison, Loni Hagen and Xiaoyi Zhao

Abstract E-petitioning is a ubiquitous form of online political action that has emerged as a contemporary and potentially effective way for citizens to communicate with their governments about policy issues and that makes public participation in policy discussions more easily accessible. We argue that e-petitioning platforms generate novel types of data and that governments can benefit from the information acquired through various types of analyses. We begin by presenting e-petitioning as a new form of political participation in the context of several different types of national democracies. We suggest that e-petitioning has provided political activists with a new mechanism for collective action. From there we consider four popular national e-petitioning platforms in the countries of Scotland, Great Britain, Germany, and the USA. We discuss the design features and submission processes of the different platforms and how they generate different streams of data that governments can use to better understand e-petitioning behavior. We then suggest and illustrate different analytic tools that can be used to explore the characteristics and dynamics of e-petitioning. We conclude by suggesting that government should actively seek ways to interpret and understand this new form of participation and policy discourse.

C. Dumas (✉) · T.M. Harrison · X. Zhao
University at Albany, Albany, USA
e-mail: cdumas@albany.edu

T.M. Harrison
e-mail: tharrison@albany.edu

X. Zhao
e-mail: xzhao6@albany.edu

L. Hagen
University of South Florida, Tampa, USA
e-mail: lonihagen@usf.edu

Introduction

Entirely new streams of data are created through the use of new technologies, which commercial organizations now rapidly exploit for their information value. However, much of this stream consists of data that government has not traditionally used or had access to in the course of decision making.

Early in the history of contemporary new technologies, theorists were excited about the potential to stimulate major changes in the way that government might function (Harrison and Falvey 2001). However, research then documented a tendency for bureaucratic organizations to fall back into traditional patterns, despite the potential for radically re-envisioning practices and processes. All too frequently, some scholars found that technology enactment tends to reproduce existing rules, norms, power relations, and practices (e.g., Fountain 2005). Achieving real innovation requires the marriage of new data and appropriate analytic techniques, together with an appreciation for the insights that the two might yield in bringing government and citizens into closer and more interactive relationships.

One such source of novel data is that generated through the process of electronic petitioning (e-petitioning). A ubiquitous form of online political action, e-petitioning systems have emerged as a contemporary and potentially effective way for citizens to communicate with their governments about policy issues and make public participation in policy discussions more easily accessible. Using a wide range of electronic petitioning platforms, individuals can request specific actions of their own government or governments of other countries and gather support for their requests through the accumulation of signatures from supporters. Currently, a number of national governments sponsor their own e-petitioning platforms, including Scotland, Germany, the UK, and the USA. There also exist numerous petitioning platforms administered by not-for-profit and commercial organizations, whose petitioners target governments of countries at all levels.

The e-petitioning process has the potential to provide useful insight about topics the public is interested in. Design features of e-petitioning platforms vary and generate diverse data about e-petitioning behavior. Analysis of e-petition texts, the dynamics of e-petitioning signature accumulation, and the outcomes of petitioning campaigns can provide information that may enable policy makers and government leaders to identify and learn more about latent or emergent topics of interest to the public, perhaps before such issue trends are more prominently apparent in other displays of public opinion. In this chapter, we introduce e-petitioning as a source of information about the policy topics and problems that are motivating political discourse for citizens, quite apart from the political agendas set by media and political party leadership. We also discuss, as another source of data, the social dynamics of petitioning, which provides information about how collective political action is shaped by processes such as social networking. We will argue that e-petitioning is indeed a novel source of information that can be used by policy makers and governments in the course of decision making.

We begin by situating petitioning in the context of traditional democratic forms of government beginning with pure participation, which today takes place primarily through plebiscites or referendums through which citizens vote to express their opinion for or against policy proposals. We then consider the most common form of democratic governance, representative democracy, and consider the difficulties of ordinary citizens in playing a role in policy formulation and choice in such structures. In most contemporary theories of policy making, the central actors are political leaders, interest groups, and the media. Indeed, as Muhlberger et al. (2011) have pointed out, most of the public policy literature fails to include an explicit discussion of how the public is involved in the policy-making process.

E-Petitioning: A New Form of Political Participation

A fundamental divide exists in democratic theory between the seemingly impossible ideal of direct democracy, as represented by the Athenian polis, versus the achievable but somewhat less satisfying pragmatic option of representative democracy, as enacted by most contemporary democratic governments (Held 1996). In direct democracy, all citizens participate directly through discussion and debate in decision making about civic affairs, with no distinctions among those who govern. However, the inability to scale up such processes to accommodate numerous citizens has, in part, made representative democracies, in which officials make decisions for citizens who elect them, a far more common approach to governance. Plebiscites and referenda, the only decision-making remnants of direct democracy to survive in contemporary representative governments, have always been viewed with distaste due to fears that the public will vote for laws that support their particular interests, without due deliberation about the consequences of such actions.

Within the context of representative democracies, new media technologies have been viewed traditionally as a way to stimulate greater participation in voting through their ability to more widely diffuse information about candidates and their positions, and through their ability to support greater participation in discussion about policy decisions through online interaction in a variety of venues, including chat rooms, discussion forums, and most recently social media channels. As Street (1997) pointed out, technology can solve problems in time, size, knowledge, and access that have inhibited participation and interaction in governance in the past.

But whether direct or participatory, the idea of democratic governance implies that the public plays a significant role in influencing public policy. However, what roles citizens should play, and the degree to which they should be empowered to play them, can be controversial. Democratic theory places an emphasis on having an informed and sophisticated citizenry so that the people can meaningfully participate in the policy process. From this view, more participation exposes participants to a greater number of perspectives along with benefits and costs, which can lead to better policies and more effective policy implementation. Discussion

between government leaders and the public can produce policies that more effectively address citizens' needs.

However, other theorists fear that participation can undermine representative democracy "by skewing input toward powerful groups or sectors of society, or by challenging or reducing the legitimacy of decisions made by elected politicians" (Bochel 2012, pp. 2–3). And similar concerns are expressed by other scholars (Fox 2009; Gilens and Page 2014; Howlett et al. 2009; Stoker 2006). Too much participation, in the form of public demands, it is feared could produce "paralysis and poor policy" that may lead to "regressive or ineffective policies" (Smith and Ingram 1993, p. 5; see also Crozier et al. 1975; Fox 2009). Muhlberger et al.'s (2011) review concludes that the public policy literature makes little mention of the public and most policy theories "offer no active, positive role for the public in the policy process" (p. 210). Still, theories of democracy require some degree of active engagement of citizens in constructing, deliberating, and expressing choices regarding government action.

Such debates often focus only on the effect ICTs have on traditional forms of participation, such as voting or letter writing, failing to consider new types of online participation, such as signing e-petitions or posting comments on political blogs (Bimber et al. 2015; van Dijk 2012, p. 109). These newer activities may not replace traditional forms of political actions, but they can provide an "expanded portfolio of political activities" for citizens (Bimber et al. 2015, p. 22). Attention to newer forms of political activities is important because of the so-called good intention versus positive action dilemma (Fox 2009, p. 676). That is, people may fail to participate when given an opportunity even though they have a general intention to participate and thereby fulfill a public duty, especially if participation requires time and effort (Fox 2009). Traditional political participation measures such as voting, letter writing, or calling representatives may not capture online political activities, particularly those of young social media users. Yet, new types of political activities (e.g., commenting in discussion forums, blogs, Facebook, and Twitter regarding political opinion) have not often been considered as measures of political participation.

Some studies show that ICTs promote "alternative forms of political participation"—political activities taking place mainly online (Anduiza et al. 2012; Earl and Kimport 2013; Tufekci and Wilson 2012) such as newer types of political consumerism, protest, online petitioning, and global activism (Bimber et al. 2015; Dalton 2013). These alternative forms of participation are characterized by weaker central control through flexible leadership, a high degree of horizontal communication, network-based organizations (Bennett and Segerberg 2012; Bimber et al. 2008, p. 81), and stronger issue orientation with participants working on specific issues they care about (Bennett 2008; Bimber et al. 2015; Earl and Schussman 2008; Tufekci and Wilson 2012).

Since representative democracies are comprised of decision makers who could theoretically deprive citizens of their rights to democracy, such states often extend a number of basic rights to citizens, such as freedom of speech (Held 1996). In the USA and several other countries, freedom of speech frequently includes the right to

petition government officials for redress of grievances as well as to express preferences over policy options. Describing the political functions of this right in the USA, Newton (2002) observed that petitioning historically called to the attention of elected leaders a wide variety of public and private concerns, including unresolved problems, unpopular policies, and instances of misconduct, corruption, and incompetence, thus expressing public opinion without threatening public order. Over time, the genres of petitioning have multiplied, encompassing “[l]obbying, letter-writing, e-mail campaigns, testifying before tribunals, filing lawsuits, supporting referenda, collecting signatures for ballot initiatives, peaceful protests and picketing: all public articulation of issues, complaints and interests designed to spur government action qualifies under the petition clause....” (Newton 2002). Internet technology now makes it possible, and indeed commonplace, to use the affordances of technology to initiate petitions of all kinds, which has provided contemporary political activists with a new mechanism for collective action. However, little attention has been paid to the volumes of petitions that have been advanced, whether it is what they say about public policy or the dynamics of the processes by which support for them is generated.

Thus, while people still use the Internet for many of the traditional acts of political participation, new forms of political participation online are also appearing. The Internet has traditionally been used for various forms of e-participation, but social media forms, particularly e-petitioning, enable participation to occur in vastly more significant quantities than has ever been the case and takes place in near real time with events that inspire action. We shall see that there is novelty to be found in the technical conditions under which e-petitioning takes place, the ease with which petitioning takes place and the ease with which support for petitions can be solicited, and of course with the methods of analysis that are appropriate for addressing this phenomenon.

Case Descriptions: Government-Sponsored E-Petition Systems

A number of countries have implemented government-sponsored e-petitioning systems both on the national and the provincial/regional level. Additionally, there are also hugely successful privately owned e-petitioning platforms such as AVAAZ.org¹ and Change.org² whose users also create e-petitions that target governments. Change.org has registered over 140 million users and accumulated over 4000 “victorious petitions” in 2015. We have examined 2282 victorious petitions written in English (of over 4000 petitions in general). As you can see in Fig. 1, 426 have resulted in action taken in response by a government organization.

¹See <https://secure.avaaz.org/en/>.

²See <https://www.change.org/>.



Fig. 1 Targets of victorious e-petitions in English language on change.org in 2015

Law enforcement and Education/School Related are also government-related organizations. This chapter will focus on four of the most widely used national e-petitioning platforms in the countries of Scotland, Germany, the UK, and the USA, and about which the most is known from the perspective of government and citizen practices and from the perspective of scholarly research. Each platform has generated relatively large numbers of petitions and users in relation to the population of their respective countries.

National E-Petitioning Platforms

The first government to implement e-petitioning was the Scottish Parliament, a democratic institution created as the outcome of a referendum in 1997 to establish a national government for Scotland within the UK. Scotland's Parliament and petitioning system began to function in 1999, having been given decision making powers for specific areas of government from London's Parliament (Macintosh et al. 2008). Their petitioning system, called *e-petitioner*, was further developed and re-launched in February 2004, with the latest version³ launched in 2013. In 2015, there were 2400 registered users. For a small country, still a part of the UK, with a population of a little over 5.3 million (as of 2014), the platform is used by a respectable portion of its citizens. The Scottish platform was the basis for the e-petitioning platform of the German Bundestag which began as a pilot in 2005 (Riehm et al. 2012). In 2008, the German system was evaluated and officially launched into operation and can be found on the German Parliament page.⁴ There are currently 1.4 million registered users in a country with a population (as of July 1, 2014) of 82.6 million.

³See <http://www.parliament.scot/gettinginvolved/petitions/>.

⁴See <https://epetitionen.bundestag.de/epet/petuebersicht.html>.

The original e-petitioning system in the UK was extremely popular (Wright 2012; Riehm et al. 2012; Hale et al. 2013). The No. 10 Downing Street e-petition platform was launched in November 2006. Between December 2006 and January 2010, 67,000 petitions were submitted, over 33,000 petitions were accepted (that is, made public for individuals to sign), gaining almost 12.4 million signatures (Riehm et al. 2012; Wright 2012). The No. 10 Downing Street site functioned until 2010 when there was a change in government leadership. The newly elected Coalition Government's UK Cabinet Office developed the current e-petitioning system, *Petitions: UK Government and Parliament*⁵ which was launched in August 2011. The new platform continues to attract a large number of petitions and users. In the first year, 2012, 36,000 petitions were submitted and 6.4 million signatures supported them (Kelly and Priddy 2015). The population of the UK as of July 1, 2014 was 63.4 million.

In September 2011, President Obama's administration initiated the first web-enabled petition system for the US federal government called *We the People*.⁶ As of April 21, 2016, *We the People* has generated over 23.2 million users, 446,435 petitions, and 32.9 million signatures (Goldman 2016). The population of the USA in 2014 was 318.9 million.

Significant Design Features

E-petitioning platforms provide design features that reflect the purpose/agenda/vision of the organization that is administering the system. Design features can determine which information will be required by users to input while using the system, which information about the user (creator or signer) will be made public on the site, how the e-petitions will be organized for users to access/search via categories or topics, what e-petition data will be available for researchers via API or datasets, and whether users are directed to links to Twitter, Facebook, etc. to gather support for an e-petition through online social networks. The data that can be collected through implementing these design features can give researchers insight on the dynamics of e-petitioning behavior, and, in consequence, information about policy suggestions and public support for them. The following sections discuss the various design features across all of the national e-petitioning platforms that we view as potentially helpful in providing information related to policy making.

⁵See <https://petition.parliament.uk/>.

⁶See <https://petitions.whitehouse.gov/>.

Format of Signatures

Certain design features of e-petitioning platforms control the information that is required for a user to create or sign an e-petition, such as name and geographic location. The data that are collected through these features can be used by researchers to better understand who the users of their platforms are, where the users are geographically located, and perhaps their gender (inferred by names) for the different policy issues raised in the e-petitions. For example, among the platforms we consider, the Scottish, German, and the UK sites require full names, address (with postal code), and email address. Prior to April 20, 2016, the US system also required full names, postal code, and email but has since then omitted the postal code requirement. It is important for governments to know which groups of citizens are using their platforms. If certain groups of people are under-represented, some actions may be taken by the government to become more inclusive.

Other design considerations involve determinations about which information about the creator and/or signer will be available for the viewing public, a decision that may affect user participation. It is possible that more users will sign an e-petition if they know that they will not be identified publically on the site. The Scottish system displays the signers' full name and country (anyone from any country can sign an e-petition, as is also the case for the US system) for each e-petition. The German system does not require users to use their real name and allows individuals to co-sign under a pseudonym generated by the system. In the past, all the real names were visible to the users on the German site. A recent study found that after the re-launch in 2012, which added the pseudonym option, no e-petition had over 50% real name signatures; most e-petitions have around 20–30% real names signatures, a development found in an analysis of e-petitions created in one year (Schmidt and Johnsen 2014).

The older UK system, 10 Downing Street, used to show the names of the 500 most recent signatures for each e-petition on the site. In the current UK system, the full name of the e-petition creator is available on the e-petition page; however, the names of the signers no longer appear on the page. The current UK site features a link on each e-petition page to an interactive map of the geographic distribution of signatures. Users can position their mouse to hover over different regions on the map and are given the name of the region, the name of the member of parliament (MP) sponsoring the e-petition, the name of the political party of that region, the number of signatures, and the percentage of constituents that signed the e-petition in that area.⁷

In the US system, the initials (first name, last name) of the signer and their city and state used to be displayed on each e-petition page, permitting geographic representations of the data. However, since the April 20, 2016 change in required input which omitted the postal code, the signers' initials are no longer listed. Currently, just the initials (first name, last name) of the e-petition creator appear on the e-petition page.

⁷See <http://petitionmap.unboxedconsulting.com/?petition=131215>.

Comments, Discussion Forums, and Other Textual Features

Some platforms allow users to generate textual data through comments or discussion forums. Researchers can benefit from the information derived from these design features by being able to see what members of the public are actually saying about the issues in the petitions. For example, in the Scottish system registered users can post comments on a petition after they sign it. The comments are displayed on the e-petition page so users can read what signers have posted and can engage in the conversation. The German system took this even further and provides a forum⁸ that allows registered users to discuss the issues surrounding specific e-petitions.

Other user content can be collected through textual features such as titles, body, or rationales for the e-petitions generated by the e-petition creator. The US and the UK systems allow the e-petition creator to add a description or background along with the title of their e-petition. The text found in the description can be used to better understand the context of the issues being raised by the e-petition creator. The German site asks the creator for a title, some text about the issue, and “grounds” for the e-petition. Similarly, the Scottish system allows the creator to provide some “background” information for the e-petition. The textual data collected through these design features can be analyzed by researchers using natural language processing techniques (e.g., topic modeling as used by Hagen et al. 2015b) to find emergent topics and issues found in the e-petitions. This information may be used to better inform policy decision making by allowing issues of relevance to the public to become more readily visible.

Category Assignment and Search Functions

Platform designers also consider how the e-petitions will be organized on the system to enable users to access specific kinds of e-petitions via categories or topic search functions. These design features allow platforms to control the accessibility of e-petitions and thereby potentially increase user participation. If e-petitions are put into categories and/or are searchable, users can browse e-petitions related to policy issues that would be of interest to them. An increase in participation results in more data generated by users that can be used to study e-petitioning behavior and how it may affect policy decisions. Additionally, by organizing e-petitions into categories, policy analysts will be able to discern which policy areas are getting the most or least attention. Either of these may be useful in decision-making policy.

Since the US website was updated in April 2016, e-petition creators can add one to three tags provided by the platform to help categorize their e-petition.

⁸See <https://epetitionen.bundestag.de/epet/petuebersicht/mz.nc.html>.

Unfortunately, now these categories are used for organizational purposes only; they are not displayed for users to use in searching within the system.⁹

The Scottish, German, and UK platforms allow users to search for e-petitions. In the Scottish system, users can search by e-petition number, keyword, or filter by the subject categories. Users can also filter by e-petitioner type.¹⁰ The German system provides no categories or topics. However, in the German system users can search e-petitions by filters for whether the e-petitions are “in the co-signature” (open to be signed), “in the test” (in review by Parliament), or “completed” (received a response) or they can search by petition title, petition id, or keyword. In the UK system, users can search by keyword in the search bar or by using the following filters: all petitions, open petitions, closed petitions, rejected petitions, awaiting government response, government responses, awaiting a debate in Parliament, debated in Parliament, and not debated in Parliament. Similar to the US and the German systems, the UK site does not provide subject categories that individuals can use to find specific e-petitions or follow e-petitions from particular policy domains.

Social Media Promotion

Promoting e-petitions through online social networks is one way to gather support in the form of signatures. Research has shown that most people will not actively seek out petitions to sign; they are more apt to sign if they see petition information on their social networking sites when it initially appears (Gleeson et al. 2014; Lin et al. 2013; Yasseri et al. 2013). Thus, an important design feature for platforms is to consider how to make it easy for petition creators and signers to disseminate links to the e-petitions via online social network sites, blogs, discussion forums, and email. By providing users with the ability to diffuse e-petition information online, the platform and its e-petitions will receive more exposure to the public and may result in more participation. Additionally, issues will get more attention from a larger population more quickly.

The Scottish, UK, and US platforms provide links on the e-petition pages for users who wish to promote their e-petition and gather support through online social networks, namely Twitter and Facebook. These three sites also provide a link to the e-petition that can be shared with the user’s network through email, or by posting on other online social networks, blogs, or discussion forums. The Scottish system also allows users to share with their LinkedIn connections. Interestingly, the German system does not provide any such tools to help the user actively seek

⁹Prior to the April, 2016 changes, users were able to search by keyword or subject categories. The search feature is no longer available and now users have to read through page after page of current petitions to sign.

¹⁰Individual, Community Groups, Interest Groups, Charities, Local Authority, Trade Union, Other, and Offline Petitioner.

support; instead, once the petition is published, the system distributes a link to all registered users for four weeks so they can sign or discuss the petition.

In an effort to promote “two-way engagement” with petitioners, the committees of the Scottish Parliament use Twitter to provide information about the status of petitions (Public Petitions Committee 2015). In the most recent report by the Public Petitions Committee (PPC) in Scotland (2016), it was suggested that the committees should consider using other social media, such as Facebook and YouTube, to promote public awareness of e-petitions and e-petitioning in general. The PPC held an “engagement event” in February 2016 where through discussions it was indicated that younger people use social media as a source of information (Public Petitions Committee 2016). By using social media to communicate with its citizens, governments can be in constant contact with the public, thereby increasing their knowledge of people’s opinion on policy issues.

E-Petition Data Accessibility

As one might imagine, it is useful for governments to work with researchers to allow access to the data generated by their systems; this enables e-petition usage to be better understood. Fortunately, there are mechanisms that make e-petition data available.

The UK site has a link to JSON files found on each of the e-petition pages.¹¹ The Scottish Parliament has extensive e-petition datasets¹² available in JSON online as well as an application programming interface (API) that allows for e-petition data to be collected. The US platform also has an API. As mentioned previously, the German platform documents its co-signing lists for each e-petition on its site; however, now they give users the option to use a pseudonym instead of their real name.

Researchers (e.g., Jungherr and Jürgens 2010) have used publically available data from the German platform in the past when the complete names were made available to study co-signing behavior. Partial datasets from the current German platform have also been extracted and given to research teams such as Schmidt and Johnsen (2014) who also studied co-signing behavior. The authors of this chapter and their research team have been working with e-petition data obtained from the US system, producing several studies that have provided insight on the e-petitioning behavior of its users using data mining and social network analysis techniques, and textual analysis using natural language processing (see Harrison et al. 2014; Dumas et al. 2015a, 2015b; Hagen et al. 2015a, 2015b).

¹¹See <https://petition.parliament.uk/petitions.json?state=open>.

¹²See <https://data.parliament.scot/#/datasets>.

Critical Issues in the Design

There are rules used by e-petitioning platforms to determine the life span of an e-petition once it is submitted. These rules vary from platform to platform and affect how much support a petition must have garnered before it becomes available on the e-petitioning website, as well as how much support it must achieve before it will be acted upon by the relevant government officials.

Acceptance, Thresholds, and Response Criteria

E-petitioning platforms are characterized by various rules that govern the process of how a petition is handled once it is initiated by a user. The definition of “acceptance” of an e-petition differs from platform to platform, which can determine whether a submitted e-petition appears on the public e-petitioning website. Once e-petitions are accepted, most platforms require a minimum number of signatures, or threshold, within a certain period of time before a petition qualifies for some sort of action or response from the relevant decision maker. A response from the platform’s sponsor is usually the desired outcome for the petition creator and signers. Researchers can use this information to track which types of petitions are accepted, what may be contributing to the success of petitions that reach the threshold(s), and how effective the organization is in responding to or acknowledging the issues that are raised. Based on the results of the analyses, government sponsors may be able to implement changes to improve certain aspects of the systems to increase political participation.

For example, the UK platform requires a petition creator to identify five people who support their petition.¹³ The staff checks the petition and will accept and publish the petition if it meets the standards that are posted on the website. In the US system, all petitions that are submitted are accepted by the system, but must meet threshold criteria to become public on the website (see next paragraph). When an e-petition is created in the German system, a full-time staff decides whether or not to accept the e-petitions, a process that generally takes about three weeks. In the Scottish system, e-petitions are accepted in accordance with the PPC guidelines.

The thresholds and response criteria vary for each of these platforms. In the UK system, an e-petition must obtain 10,000 signatures to receive a government response; 100,000 and it will be considered for debate by the Parliament. All e-petitions remain open for six months. The e-petitions that are debated are video recorded, and a link to the video and to the transcript is displayed on the website. In the United States system, an e-petition must garner 150 signatures within 30 days to

¹³Instructions on how to do this are given to the petition creator after they have created their petition.

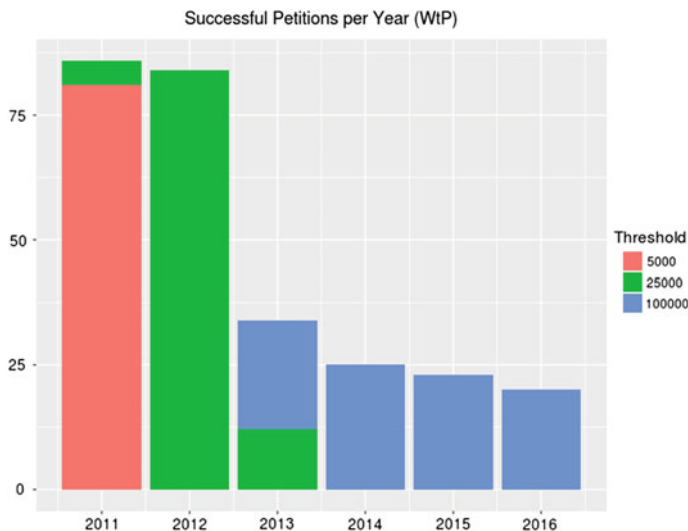


Fig. 2 Successful petitions per for *We the People* (US platform) with threshold variants over the years

be made public on the website. When an e-petition reaches 100,000¹⁴ signatures within 30 days, it is eligible for a response by the Obama Administration. Figure 2 shows the number of e-petitions that have successfully reached the given threshold per year since the platforms inception in 2011. It appears that the higher the threshold, the lower the number of successful petitions.

Until recently, not all petitions that reached the threshold in the US system received a response. As of July 28, 2015, the Obama Administration had responded to 255 petitions (91%) that met the threshold (Goldman 2015). On July 28, 2015 the Obama Administration announced that all petitions that meet the threshold requirements will receive a response within 60 days (Goldman 2015), a promise that appears to have been well kept.

In the German platform, once the petition is accepted by the staff, it is published on the website. If the petition achieves 50,000 supporters in four weeks, the creator of the petition can discuss the issue with the deputies at a public hearing by the Petitions Committee. Alternatively, the Scottish system has no threshold for a petition to be considered. Instead, the petition will go on the website for an agreed period between four and six weeks. It is then formally lodged and is scheduled for consideration by the committee. Once a decision is made, the petition creator is made aware of the outcome of the meeting.

¹⁴The original threshold to receive a response was 5000 raised to 25,000 in October, 2011 and raised again to 100,000 in January, 2013.

E-Petitioning Data Analysis

In order to make data from e-petitioning useful to governments, we suggest and illustrate several data analytic tools that can be used to explore the characteristics and dynamics of e-petitioning.

Text of Petitions

One option is to consider the types of topics that are the subject of e-petitions. Most e-petitioning platforms supply an a priori category scheme provided by the platform sponsor. The US system's category scheme mirrors the organization of the executive branch. A more useful approach may be to analyze emergent topics, which provides a potentially more accurate depiction of what topics e-petitioners are interested in addressing (Hagen et al. 2015b). For example, Hagen et al. (2015b) applied Natural Language Processing (NLP) and topic modeling to identify emergent topics within all e-petitions appearing on the US website from October 15, 2011 to May 30, 2014. They found that e-petition initiators are interested in topics such as animal protection, student loans, events in the Ukraine, more funding for children's health needs, safer food production, gun control policies, and discrimination against homosexuals. These naturally occurring topics are very specific in comparison with the more generic topics, such as Civil Rights and Liberties, Human Rights, and Foreign Policy, that are provided in the US system. These NLP techniques may enable policy makers and government leaders to identify and appreciate more finely grained topics of interest to the public, perhaps before such trends become identifiable in other ways.

Further analysis can explore and analyze textual choices for indicators of public opinion, such as sentiment analysis of the petition text. Although research has not directly addressed this subject, we believe that sentiment expressed in e-petitions can be studied to understand citizens' concerns, such as when e-petitions contain emotionally charged language filled with expressions of anger, frustration, gratitude, etc. This allows for studies of the effects of such language on raising public interest and generating more signatures, resulting in a greater chance of the e-petition gaining the attention of policy makers and turning into action.

Signature Accumulation

E-petitions may raise policy issues or propose solutions to existing ones. Governments and researchers may want to pay attention to what policy issues are under consideration by the public as well as to what kinds of solutions are being offered. Signature accumulation is a good way to differentiate between ideas that

have a lot of support and ideas that do not. E-petitions that garner a large number of signatures within a small period of time can be considered more likely to become successful, depending on the platform's definition of success. Researchers can study petitions with varying levels of support to identify what contributes to more support for some e-petitions, less support for other e-petitions. On a platform that simultaneously features several petitions that suggest multiple solution options to a policy problem, signature accumulation may differentiate between policy options that are more or less supported. Perhaps there are exogenous factors such as media exposure for the issue or the e-petition itself, recent events that appear to be triggering the petitions, or dissemination of the e-petition information via online social networks. Perhaps support may be attributed to continuing and long-term interest in the issue under consideration or in a particular policy solution that is being presented. These are, of course, research issues but government will also be interested in what kinds of behaviors are promoted or inhibited by the platform and when support can be attributed to public opinion.

Several studies have analyzed e-petition signature data. Research on the original UK platform, 10 Downing Street, found rapid growth in signatures for successful e-petitions (Hale et al. 2013). Most of the signatures accumulate in the first few days that an e-petition is made public on the site. In line with the Hale et al. 2013 study, Yasserli et al. (2013) found that on the current UK platform, very few e-petitions attract a large number of signatures; e-petitions with a high volume of signatures collected them right after they were made public and, after a few days, signing activity dropped off significantly. Both studies, Hale et al. (2013) and Yasserli et al. (2013), found that the first day is crucial to achieving any kind of success; a majority of e-petitions that started on the platforms failed to achieve any real traction, and the small number of e-petitions that obtained high volume of signatures did so quite rapidly. Our work with the US e-petition signature data supports these findings.

Research on the US platform has found evidence that people were signing more than one petition related to gun control laws after the Sandy Hook school shooting on December 14, 2012. During the week (December 14–21) after the fatal shooting of 20 children and 6 school personnel by a lone gunman, 33 e-petitions were created. Of these, 12 favored gun control laws and the other 21 argued against gun control laws or offered alternative policy suggestions such as improvements in mental health care, and putting armed guards in schools. Using market basket analysis and social network analysis, we analyzed the extent to which individuals who signed one e-petition in favor of a particular policy option, for example mental health-care reform, also signed other petitions favoring the same policy suggestion. We found substantial patterns of co-signing of petitions proposing similar policy options, indicating that signers recognized similarities in the policy positions expressed, and endorsed multiple petitions with thematic similarities. These patterns of co-signing were also reflected in our network analyses of communities, which supported specific policy proposals that conformed to a particular theme. We concluded that the signing of e-petitions related to Sandy Hook was used strategically by individuals to express opinions about and influence gun control policy in

the future (Dumas et al. 2015a, b). The results of these studies support our claims that e-petition data can provide information about how collective political action can take place on e-petitioning platforms.

On the German site, it was found that e-petitions that overlap at the point of initiation with a popular e-petition will attract more signatures (Jungherr and Jürgens 2010; Schmidt and Johnsen 2014). Jungherr and Jürgens (2010) also found similarity of topics in some of the overlapping e-petitions. So there was evidence of individuals actively looking for other e-petitions addressing a particular issue that they could support by signing them.

Who Uses E-Petitioning Systems?

Although very little research has addressed the demographics of e-petitioning, it would appear that governments might learn useful information about those who actively use e-petitioning as a form of collective action. Little is known now about who is using government platforms. We acknowledge that there may be over-participation by groups already over-represented in online activity due to easier access to the Internet and having the time to use e-petitioning systems. One would think that such information could be helpful in finding ways to attract non-participating or under-represented groups and to achieve a potentially more balanced representation of the entire population.

However, several studies have addressed the users of the German system. Using data from a 2007 survey, Lindner and Riehm (2011) found users tend to be well-educated males, who also tend to be younger than traditional (offline) petitioners. The traditional paper petition, which still exists, is used predominantly by the older population; 60% of these types of petitioners were retired (Escher and Riehm 2016). In a later 2008–2009 survey on e-petitioning in Germany, Escher and Riehm (2016) found that online petitions attract younger people (people between 21 and 59 years old); 85% were male (p. 11). In addition, while the introduction of the e-petitioning site in Germany encouraged more young people to bring forward petitions (with 32.7% of all e-petitioners belonging to the 20–39 age group) the e-petitioning site has also amplified other gender and socioeconomic biases. In an earlier study, Lindner and Riehm (2009) assert that the introduction of e-petitions systems in four cases (Scotland, Queensland, Germany, and Norway) failed to significantly mobilize individuals who do not participate in politics or are under-represented.

Data from a self-completion questionnaire sent in August 2015 to people who submitted petitions to the Scottish system after June 2009 found the following socioeconomic characteristics of petitioners: 58% had a first degree or higher, 71% were between 45 and 74 years of age, 62% were male (91% of the males are white), 72% ranked in the highest socioeconomic class, and 37% were retired. In sum, the average questionnaire respondent was male, aged 45–74, first degree or higher,

white, retired, highest National Statistics Socioeconomic Classification,¹⁵ living in the West of Scotland (Public Petitions Committee 2015).

Online Social Networking Data

To better understand the social dynamics of e-petitioning behavior, analysts can examine the diffusion of e-petition information in online social networks. Petition initiators have the option to immediately spread information about their petition to their related social networks through platform-provided access to Twitter and Facebook. Using techniques from social network analysis and data mining, research can explore how petition information is diffused. Groups of people actively seeking support for an issue or cause and coming together for a common goal frequently engage in online collective action. E-petition signing patterns involving social networks can reveal one important form of online collective action. This information may be used by policy makers to understand which actors are influential in mobilizing online support for certain policy issues that are salient in the public sphere. Dumas et al.'s (2015a, b) study of e-petitioning on We the People following the Sandy Hook tragedy used centrality measures and community detection algorithms to find core groups of people who were mobilizing for and against gun control laws. These studies provide evidence that individuals used the US platform to register their support for certain specific petitions that offered a particular policy option.

News media increasingly cover the initiation and signature progress of selected petitions; we suspect that such coverage may be related to e-petitioning outcomes (Dumas et al. 2014). Time series analysis using signatures from petition data, media articles in the popular press, and data from social media such as Twitter may be used to extract meaningful forecasts about the diffusion of information about petitions and corresponding increases in signature accumulation and eventual petition popularity. Forecasts about the popularity of petition campaigns underway may be useful in helping governments understand in real time what actions should be taken in responding to the issues addressed. In the US system, a few successful e-petitions have been followed by actions that are consistent with those requested by the petitions, some with attribution to the petition. For example, the petition "Make Unlocking Cell Phones Legal." was created on January 24, 2013 in response to the decision of the Library of Congress to remove cell phones from the exceptions to the Digital Millennium Copyright Act (DMCA). The petition garnered 114,000 within the 30-day threshold needed for a response from the Obama Administration. The response included a plan of action that involved working with

¹⁵See <http://webarchive.nationalarchives.gov.uk/20160105160709/>, <http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/soc2010/soc2010-volume-3-ns-sec-rebased-on-soc2010-user-manual/index.html#14>.

the FCC, wireless companies, and Congress to make unlocking cell phones legal. According to Mechaber (2014), Deputy Director of Email and Petitions in the White House Office of Digital Strategy, the popularity of the e-petition (through signature accumulation), the concerted efforts of the White House policy team, FCC, and the wireless companies and the national attention by multiple media outlets encouraged both the House of Representatives and the Senate to pass legislation to legalize cell phone unlocking in March 2014. It was the first time an e-petition apparently led to legislative change.

Conclusion

Current concepts of open government argue in favor of government that is more responsive to citizen feedback, which is a very different model of relationship to citizens than that which is typically associated with bureaucracy. Open governments are governments that appear to be actively promoting transparency, consultation, and participation with citizens (Obama 2009), seemingly in an effort to replace or deemphasize traditional modes of bureaucratic organization in favor of government that interacts with, is networked to, and ultimately is more responsive to citizens. The technological tools for such new models of government communication and organization are clearly now available. However, a continuing issue in deriving maximum benefit from using such tools is that of deriving maximum value from the data. While e-petitioning cannot be used at this time to implement direct democracy (and perhaps should never do so), it represents a contemporary participatory phenomenon in which motivated members of the public are able to communicate directly with their government about policy preferences, which presupposes that someone in government is prepared to listen. E-petitioning processes provide data streams generated by petitioning behavior that, with appropriate strategies, can be analyzed to better understand what citizens are thinking and the forces that shape their attitudes. However, the future of e-petitioning raises several interesting questions that we offer below for further consideration.

We have examined four national e-petitioning sites in the countries of Scotland, UK, Germany and the USA, each with different characteristics and features available for the users. In the Scottish system, there is a discussion forum section where the petitioner can prompt the public to debate and deliberate about petition-related issues. This is not the case for We the People. In some petitioning platforms, users are anonymous; in others, users' identities are available. For these, and other features, the design of the platform may play a role in the usefulness of the information that government may obtain.

It is worth noting that e-petitioning platforms created by governments are tenuous. Some platforms are established through legislation, such as the e-petitioning system in Scotland. But other platforms change with the election of new government leadership, as is the case for the UK e-petitioning site, which was formerly known as No.10 Downing Street. The US platform, *We the People* was initiated by

President Obama in 2011. As of this writing, *We the People* is active; however, it is not clear if this will be the case when there is new leadership in the White House. Further, e-petitioning platforms are most prevalent at the federal level and not very often seen at the state or local levels. In contrast to government-sponsored e-petitioning sites, proprietary e-petition services such as AVAAZ.org and Change.org, both launched in 2007, have been in existence for longer periods of time and function largely outside the purview of government organizations, despite the fact that citizens use them to target government at all levels.

These considerations give rise to questions for discussion and research such as: What should be the future of e-petitioning? Does government have a vested interest in maintaining e-petitioning platforms of their own? What are the advantages and disadvantages of incorporating e-petitioning as a fundamental participatory tool for citizen–government interaction?

What seems relatively safe to say at this point is that e-petitioning will take place, whether government is a participant in these processes or not. Government organizations may find value and benefit from the opportunities that e-petitioning offer. On the other hand, government may abstain and instead play a spectator role as constituents mobilize in support of various policy proposals. We suggest that government should actively seek ways to interpret and understand this new form of participation and policy discourse.

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Mass Online Deliberation in Participatory Policy-Making—Part I

Rationale, Lessons from Past Experiments, and Requirements

Cyril Velikanov and Alexander Prosser

Abstract This two-part chapter proposes a model and some design choices to build a Mass Online Deliberation (MOD) system, aimed at supporting orderly, fair, inclusive and purposeful participation of a large number of people. According to this model, a deliberation on a given issue, in a given community and at a given time (a “deliberandum”), progresses through a number of phases, roughly corresponding to ideation (moving and discussing proposals, with a proposals’ clustering algorithm operating in the background), consolidation (i.e. editing of one proposal per cluster) and reconciliation (of some among the consolidated proposals from different clusters). Depending on a given context of use, a final selection of one among the remaining irreconcilable proposals may be done by vote either among the deliberants only, or within the whole community (a referendum), or else, within a randomly selected panel of community members. The specific mechanisms defined in our model are as follows: mutual moderation and two- or three-parametric appraisal of each other’s contributions (hence without employing any staff of external moderators or facilitators); semantic clustering of a large number of proposals, performed in the background by the system and mostly based on the distribution of participants’ appraisals among contributions; and also some specific role of experts in the field, whose participation is limited to providing facts and replying to factual questions, not to actively influence participants’ opinions. Multilingual mass deliberation is discussed at the end of the Part II of the chapter.

C. Velikanov (✉)

International Memorial Society, Moscow, Russia
e-mail: cvelikanov@gmail.com

A. Prosser

Department of Informations Systems and Operations, WU Wien,
Vienna University of Economics and Business, Vienna, Austria
e-mail: prosser@wu.ac.at

Rationale

Today's aspirations to a more open and participative governance lead both the legislative and the executive bodies (from local and regional levels up to national and even transnational ones), as well as the society as a whole, towards introducing and promoting various forms of a larger public involvement in the state and societal affairs. Modern ICT, especially the Internet, is unanimously considered the most powerful enabler of this general movement. "Going online" is expected to open the door, if not to direct governance, at least to a largely participative one. The tremendous success of social media, exploiting the paradigm of large-scale online one-to-many communications, seems to justify these expectations.

Until now, however, the level of public participation in typical "eParticipation" pilot projects or campaigns has remained very low (on the stipulation that participation is counted *per topic discussed*, and not per site visited).¹ Low participation deprives such initiatives of any representativeness and makes it unlikely that their results (e.g. opinions or requirements expressed by participants, or proposals moved or developed by them) would be taken seriously into consideration by the authorities and/or by society. Such a non-productive and non-influential activity indeed cannot attract a large number of citizens, which in turn makes those eParticipation initiatives yet scantier. This is a kind of vicious circle.

Yet, such a negative assertion applies first of all to participative activities that involve the public in *moving and discussing their own proposals*. If, in contrast, we turn to a simpler case of *ePetitioning* (i.e. collecting citizens' signatures, mostly online, under a request or a proposal preformulated by an NGO or by a group of citizens), then we may obtain a much stronger participation. Successful ePetitions sometimes attract hundreds of thousands of signatures—up to 1.8 million in one 2007 case in the UK (on a government-sponsored platform), and since then, several ePetitions with 2 M signatures and more, on independent platforms such as Avaaz or Change.org. The ePetitioning paradigm, however, is inherently weak, and even non-democratic, because it relies on the good will and good sense of a few people who have formulated and launched every given ePetition; shortly, it could be seen as a referendum with only a "yes" option (while possible "no" votes are undistinguishable from "not voted") and as such cannot be considered a true participation in governance. In what follows we will not consider ePetitions as true eParticipation events.

¹In this chapter, the commonly used "e" qualifier in such terms as "eParticipation" and "eConsultation" does not mean an activity performed exclusively online, but an activity, a process, or a campaign, of which maybe only some parts, or stages, may or should be performed online. In particular, our concept of "Mass Online Deliberation" relates to a process with a central stage (common deliberation) performed exclusively online, preceded and followed by complementary stages not necessarily performed online.

Turning to other, more consistent forms of public political activity, we see, to begin with, a plethora of political discussions that start every day (though rapidly vanish) on various online forums, and first of all on Facebook and in other social networks. This rather intense activity shows that people *like* participating in political discussions, by posting their opinions, comments, and even *proposals*, despite the fact that they know for sure that such a private political discussion would have no effect on real-life politics. In Section “[Are Social Media Like Facebook an Appropriate Tool?](#)”, we develop arguments against considering social media, at least the existing ones, as a place suitable for purposeful political deliberations.

When, however, we turn to any government-sponsored (or institutionalised in any other way) site or platform devoted to public participation in policy-making, we typically see *very low* participation (with a few recent exceptions, some of which will be discussed in Sections “[A Few Recent Large-scale eParticipation Campaigns](#)” and “[Our Analysis of the Above-Presented eParticipation Cases](#)”). This is especially true for *eConsultations*, where citizens are invited to post their opinions on a draft law or on a planned executive decision, or to move their proposals on a given issue (see Prosser and Müller-Török 2010). As a general rule, every such individual comment is handled separately and not as a result of deliberation among citizens—a typical eConsultation platform simply has no provisions for that. In the absence of deliberation, this kind of political participation degenerates into a set of monologues of lone citizens addressing the overwhelming authorities; their proposals and opinions remain their own ones, even if supported by others; proposals remain static and immutable “social choices” of the proposers; and the acting authority remains the sole and final arbiter to select among several contradictory alternatives proposed. People indeed feel this subordination and generally are not inclined to take part in consultative actions by their authorities. Similar problems are known in participatory budgeting (see a summary in Eisel 2012).

There also exist platforms where people can at any time advance proposals on any subject, the government bodies being legally obliged to consider any such proposal once it gains even a minimal support from other people. The Estonian “TOM” (for “Today I Decide” in Estonian, <http://tidplus.net/>) is an early example of such platforms; the Latvian “ManaBalss” (<https://manabalss.lv/>) is an example of a much more elaborated system of this kind. This paradigm of “proposing anything at any time” (or *spontaneous agenda setting*), apparently the most “democratic” one, in fact *reduces* public participation per proposal posted, making such a weakly supported proposal not really suitable for formal consideration. Even when such a platform allows mutual commenting and not only voting, participation per given proposal remains typically within a few dozens of people. The reason is that, when citizens propose anything spontaneously, without any *advertising* and preparation, their proposals may only attract their friends and a few other people occasionally visiting the site by the time when the proposal has been launched.

Our major claim is that this repetitive failure of public participation initiatives, events and tools is due, *first of all*, to the fact that they lack appropriate support for *deliberation*. Deliberation is at the heart of any policy- or decision-making process that

one can consider “democratic” or even “legitimate”. In representative democracies, deliberation happens among the deputies within the parliament or another elected body, following a more or less strict “parliament procedure”; the same is true concerning jury trials. In the USA, the famous “Robert’s Rules of Order” (Robert 2011) have been widely used for already 150 years by many local communities and private associations as a procedural framework for their assemblies.

When we say “deliberation”, we mean something much more restrictive than a simple discussion. Deliberation is a *thoughtful, purposeful, informed, and well-ordered discussion among peers*, preserving their equal right “to take the floor”, that is, to speak or write. These are the basic qualities of, or requirements for, any deliberation. Numerous political discussions in online forums and on social networks, generally, cannot be called deliberation, though they indeed show a rather intense interest of citizens in various political issues (see Section “[Are Social Media Like Facebook an Appropriate Tool?](#)” for a more elaborate discussion).

Furthermore, as any deliberation involves human *participants* who typically have some individual *time constraints*, and who are subjected to some individual *attention limits*, an additional requirement is *economy of time and of efforts*. Deliberation procedure shall therefore serve as a mean to fulfil those basic principles of purposefulness, fairness and economy. In the following sections, we will gradually develop these basic principles into a much more detailed set of requirements and will build up our procedural deliberation model in accordance with those.

Summing up the above considerations, we arrive at these very general claims:

- (a) Citizens are less and less satisfied with the existing forms of representative political systems; they aspire to *direct participation*.
- (b) They are not so apolitical as it has too often been claimed; rather, they feel concerned with a range of political issues, and they discuss those issues, mostly in writing, on independent online platforms and especially in social networks—despite the fact that such private discussions are not likely to influence real-world politics.
- (c) In contrast, online participative actions aimed at influencing real-world politics, whether on government-sponsored or on independent platforms, typically follow an unidirectional (citizens to authorities) paradigm, with no “horizontal” deliberation — a fact that dissatisfies citizens and often reduces their practical political actions to a simple petition-signing.
- (d) Existing platforms and tools aimed at supporting public deliberation and collaboration are not scalable; they can serve only a very limited number of participants (if counted per every single instance of deliberation on a given issue).

Our claim is that the modern society is already well-prepared for direct deliberative political participation and is just waiting for an appropriate support system to emerge. An issue that is of concern for a large community (on a national or international scale, but also in a region or megalopolis) implies a deliberation on a

large to very large scale (say, tens to hundreds of thousands of participants). ICT systems supporting deliberation of that size simply do not exist yet. Such a system should implement and enforce an appropriate deliberation procedure.

We call the whole concept *Mass Online Deliberation* (MOD). Here “mass” means many people deliberating *together* in one common “room”—as opposed to a method of having several small groups deliberating *separately* in several “rooms”. The latter approach has been explored most successfully by James Fishkin (1991, 1995) in his Deliberative Polling. In Section “[The MOD Paradigm versus Deliberative Polling](#)”, we compare these two approaches, as well as the two opposing paradigms of discretionary participation versus participation through random selection.

Our above-stated goal has not only a practical, but also a socio-philosophical dimension. According to Jürgen Habermas (1996), there are two well-delimited mega-systems, economy and state governance (or government, or administration). Civil society is, in his view, not a system, but rather a non-structured continuum. In his foundational books on “communicative action”, Habermas (1984, 1987, 1990) expresses his belief in a reasoned deliberation as the only really legitimate way to deal with controversial societal issues. However, in his later book “Between Facts and Norms” (Habermas 1996)² he steps back, by declaring that formally established deliberation can only happen within the governance structures, especially representative ones, while the civil society is, and will remain, a turbulent medium of multiple non-regulated deliberation instances. Such a vision, while making every attempt at promoting participative governance, seems to us too strongly rooted in the past. Following a different approach, we are researching and designing all the necessary procedures, information systems and institutional frameworks that will make it possible *for structured and goal-oriented deliberation to happen at any level and on any scale*, thus incorporating strong and operational systemic features in the otherwise amorphous “civil society”.

In the past few years, our MOD concept had been presented in a few conference talks and papers (Velikanov 2010a, b), every time in more and more details; however, it still lacks any ICT implementation. The reason for this delay is that such a large-scale system could only be tested in a *real world real-size pilot deliberation*, i.e., within a large community and on a practically relevant issue. Such a pilot should be successful, for its failure would have a long-lasting negative effect on every next attempt. Hence, we shall foresee every pitfall, both technological and (yet more important) *psychological*, relative to citizens’ *deliberative behaviour* in such a new, artificially created setting.

The present publication in two separate but interrelated chapters (Part I and Part II) should be considered as a next iteration of our project development, aimed at approaching yet closer the stage of its practical implementation, *which ought to be*

²All references are given to the English translations of Habermas’ works. The original books in German have been published three to four years earlier.

successful from start. In this chapter (Part I), we formulate basic requirements and design principles for our system, while in Part II we describe the MOD process and procedures in more details.

Early Examples Showing Typical Obstacles to Deliberation

We start with two older examples of public participation campaigns that attained a rather important number of participants. The first is taken from the bulletin board of the UK Youth Parliament (UKYP), which was operational for several years, but now seems to be closed. This project was specifically aimed at a young audience (11–18 years) and had claimed a really large number of participants. The UKYP bulletin board was split into few “categories” (broad subject areas), which were further split into “forums” (more specific subject areas). Every forum consisted of a large number of “threads” (conversations on a topic); a new thread could be launched by any registered participant. One of the longest threads deals with a question whether capital punishment should be restored or not. This thread (active in 2008–2009) collected about 1000 posts, including a few alternative proposals.

It appears from our analysis (performed manually and indeed rather imprecise) that the whole thread was evolving as a series of short discussions around every newly posted proposal or opinion; once a discussion vanished, other participants never returned to it, and no serious comparison among alternative proposals has ever been performed by any participant. Semantically duplicate proposals appeared quite often and were discussed on the same level as new ones. This is because no structure had been offered and imposed on a level below “thread”.

UKYP bulletin board provides us with an example of a largely followed, though unproductive political eParticipation activity, staying on the level of a simple chat on political and societal themes, as do most of today’s discussions on Facebook or other social media. Had UKYP provided its members with a more structured and goal-oriented discussion platform, some of those “chatterers” would have gone, but probably many more serious and purposeful young participants would have joined. Also, discussion results would have become of much greater use for decision-makers.

Our second example comes from Russia, where in August–September 2010 a draft of a new frame law on the state police, prepared by the authorities, had been opened for public commenting (see Velikanov 2011; Prosser 2014). In just 5 weeks, about 16 thousand active participants, after registering on the official site of the campaign, have posted more than 21 thousand proposals and comments, and casted 40 thousand votes for specific proposals; the number of site visitors reached 1.5 million. Hence, in quantitative terms participation was really massive, maybe the first and still unique example of a kind.

In terms of its deliberative quality, however, this experiment can hardly be considered a great success. In fact, the site was operating as a non-threaded forum divided into sections corresponding to the chapters and paragraphs of the draft law,

with just a few options of sorting all the posts by date or by popularity, across the whole site or within a given section. By analysing the posts by their date of submission and the number of supportive votes, one can easily discover that, after the first few days of the site operation, participants ceased commenting on each other's proposals; they seemingly ceased even reading those other proposals before posting their own ones.

The reason for such a “non-deliberative behaviour” was quite simple: when the number of proposals grew above some “attention limit”, it became virtually impossible to get a full image of all competing proposals; so people continued to write while they were not reading anymore. The resulting thousands of proposals were then sorted out by a staff of editors appointed by the Ministry of Interior—rather than by the participants themselves—and hence it was that same authority that took final decisions on which ideas were the most supported ones.

A Few Recent Large-Scale eParticipation Campaigns

Until recently, we were only able to argue speculatively about requirements for, and characteristics of, large-scale public eParticipation campaigns. In the past few years, however, a number of interesting cases have appeared, providing scholars with relevant field data. As the apparent success of these large-scale eParticipation campaigns seems contradicting our above conclusions, we need to expand on their thorough analysis. In this Section, we present three cases (of specific eParticipation campaigns in Iceland, in Estonia and in Finland), emphasising their characteristic features that will be then analysed in the following Section.

1. The “crowdsourced” Icelandic constitution (for some formal reasons not yet enacted). This Icelandic campaign (for detailed presentation and analysis, see Fillmore-Patrick 2013; Landemore 2013) was effectively triggered by the 2008 financial collapse of the whole country, though the need for constitutional changes had been perceived long before. The dramatic winter 2008–09, known as “kitchenware revolution”, ended up in April 2009 with early elections of the national parliament (Althingi). The winning coalition then nominated a Prime Minister (Jóhanna Sigurðardóttir) who has become the main institutional promoter of the whole process of open and inclusive constitution-drafting, the first of a kind.

The process had been launched, however, not by the authorities but by a grassroots organisation (“The Anthill”), which held an unofficial conference called the National Assembly, with approximately 1200 participants, three quarters of whom being randomly selected from the total of 235 thousand of Icelandic voters, and the remaining one quarter being delegated by various stakeholders. The National Assembly, in a one-day live meeting in Reykjavik, has set up a prioritised list of values that should be expressed in the new constitution. It worked in several small-sized discussion groups led by trained facilitators according to a pre-established procedure, which had been elaborated and made public by The Anthill a few months before this major gathering.

The parliament then took the initiative, by specifying the subsequent steps of the constitution-drafting process, meant to be fully institutionalised and legitimate. First, a 950-person National Forum had been convened, following roughly the same procedure as that of the informal National Assembly a year before: stratified random selection (quota sampling method) of participants, deliberating in small groups, heavy involvement of trained facilitators, and pre-established and published facilitation procedure. All participants of the National Forum worked for a whole day, *being paid the one-day salary of a member of parliament*. The National Forum has produced recommendations for the constitution drafters, more advanced and structured than those expressed by the National Assembly.

The next step, according to the Act, was the national election of a 25-member Constitutional Assembly, a collective drafter of a new constitution. The election campaign was short, not well-prepared, and insufficiently advertised; as a result, only 36% of Icelandic voters did participate. The 25 members were elected out of approximately 500 candidates. Most of the elected members had a university education level, some of them being faculty members; none of them, however, could have been considered a specialist in constitutional law or similar matters, while the public officers were explicitly excluded from the election. Eventually, the country's Supreme Court invalidated the election for some technical reasons; Parliament, however, kept at the election results; it just lowered the status of the Assembly and renamed it into "Constitutional Council".

The Council had been given 3 months, with a possible one-month extension, to draft a new constitution. Eventually it worked for the whole 4 months, from April till July 2011. It used the services of various experts, though the latter had no decisive voice in the Council's deliberations. The work of the Council was organised in a way as to ensure openness and public participation. An official website of the Council had been created, doubled with a special Facebook page, where the successive incrementally developed drafts (twelve in total) were published, to collect citizens' comments and suggestions. Additionally, Facebook and other social media were permanently searched for comments and suggestions posted on "secondary" pages, and everything meaningful was copied into the main Council site and page. Citizens were even allowed to send their comments and proposals via email and paper mail. Reports on the ongoing work by the Council were largely publicised in the classical media outlets, and their plenary sessions were broadcasted.

In total, the Council had received over 3000 suggestions from citizens. Sorting out this mass of textual input was a large task that had been performed by the Council members themselves; hence, theirs were the decisions on which suggestions are the most valuable and/or supported, to be included in the next draft. A comment or a suggestion could attract further comments, and some among the councillors did often participate in the discussion, though, according to the Council's procedure, this was not mandatory.

The third and last step was to submit the final draft, produced by the Council, to a national referendum. This was held in October 2012 and attracted a solid 49% participation of the Icelanders, with 73% votes in favour of the draft. However, due to the above-cited Supreme Court ruling, this referendum was not a binding one;

hence, a normal procedure consisting of two parliamentary hearing and votes had to be followed. Notably, the acting parliament rejected the draft, while legally it could also approve it—this is a rather typical example of when the authorities do not keep their initial promise.

2. The Estonian constitutional amendments. This was a long participatory process, starting right after the Icelandic one spanning half a year (November 2012–April 2013), with another full year before some of its results have been enacted by Parliament (see Jonsson 2015 for details and analysis). Similarly to the Icelandic process, it had been triggered by an event that caused public indignation. It is worth mentioning that the “Estonian cause” seems to be really a minor one as compared to the real disaster that was the “Icelandic cause”; nevertheless, it had not only attracted public attention, but became a long-lasting impulse for public action.

A member of the Estonian parliament disclosed illegal methods of collecting money for his party’s campaigning. A few months later, after “digesting” the news, the indignant public took to the street, requesting from their politicians and from the whole political system more integrity and transparency. A harsh pamphlet (“Harta 12”) had been published in newspapers and finally transformed into a massively signed petition. Similar to the Icelandic case, this popular movement had been met by a branch of the state authorities—this time by the President (Toomas Hendrik Ilves) rather than by Parliament. The President invited representatives from NGOs, from political parties and from the Academia, as well as lawyers and the initiators of the Harta 12 petition, for a meeting in the presidential residence (referred to as the “Ice-Cellar Meeting”). By that time President Ilves had already gained a reputation of a skilful and well-intentioned mediator between the authorities and the public.

At the meeting, both the President and the representatives of NGOs referred to the Icelandic experiment of “crowdsourcing the constitution” and appealed to hold a nation-wide “Deliberation Day” (a brand of the well-known “Deliberative Polling” (Fishkin 1991, 1995)). This means a live gathering of a large number of randomly selected citizens deliberating in several small groups under the guidance of trained moderators. The Ice-Cellar Meeting was broadcast on national TV, and its immediate result was to calm down the citizenry, by tracing a peaceful way to satisfy their requests. Another interesting detail, the political parties showed no interest in the process, if not explicitly opposed to it.

As was the case in Iceland, the whole process, known as the Estonian Citizens’ Assembly (ECA), had been organised and managed by a network of NGOs, the Estonian Cooperation Assembly. The goal stated was not to rewrite the whole constitution, but to amend it (or to introduce appropriate legislation) in line with the perceived popular demand, by largely using crowdsourced suggestions and opinions.

First, and well in advance of the planned Deliberation Day, a special website was created, which allowed for public deliberation around five predefined topics. Any Estonian citizen could participate, after registering on the site with his/her electronic identity card (which is mandatory in Estonia). Debates were generally held in a neutral and respectful tone, which was probably due, among other causes, to this strictly authenticated registration of participants. In total, approximately 2000 proposals and more than 4000 comments on those have been posted on the site. At

the end of this stage, all those proposals and comments have been manually sorted and ranked by a group of NGO representatives and appointed experts.

The second phase of the ECA process started with inviting experts in various thematic fields, who scrutinised citizens' proposals, already grouped at the end of Phase one. It is important to note that all those experts worked *pro bono*. Then, another series of one-week-long deliberative meetings had been held among the experts and the authors of proposals under consideration, including some politicians. At the end, a few groups of proposals were consolidated, giving rise to 18 edited proposals. Authors of proposals had been given an opportunity to discuss their proposals with experts, without being dominated by the latter—a feature of special interest to us.

The ultimate phase of the ECA process was the Deliberation Day held in April 2013. From a stratified random selection of 550 citizens, only 314 agreed to participate. Hence, the attendance was three times less in absolute numbers than in the Iceland's National Forum two years earlier, while the voting population in Estonia is four times larger than in Iceland. Deliberation progressed in small groups assisted by trained moderators, around the 18 proposals edited at the end of the previous phase. In a final vote, 15 out of those 18 proposals were maintained by a large majority of the deliberants. The whole event was largely publicised, broadcast on TV and had indeed attracted public attention.

In contrast to the Icelandic process, the ECA was from the very beginning totally disconnected from the legislative body; hence, it was the President's initiative to submit those 15 proposals to Parliament. It took one year for the latter to enact three of them, with another four awaiting their fate.

The ECA was a one-time campaign, like the Icelandic constitution-making process; no institutionalised forum has resulted from either of them for doing similar things in future.

3. The Finnish crowdsourced legislation on off-road driving. Unlike the above-presented Icelandic and Estonian cases, this Finnish experiment (see Aitamurto and Landemore 2015 for details and analysis) had not been triggered by a special event causing heated public reaction. Rather, it was a governmental initiative, following several years of parliamentary inaction on a subject that opposed two categories of Finnish people who favour different values and/or have conflicting personal interests: those who like unconstrained driving off-road vehicles across the immense Finnish natural reserves, and those who prefer quiet and undisturbed life in their country houses. Finally, in January 2013 the Ministry of Environment had set up a crowdsourced law-making process that spanned most of the year, until October 2013.

The process started with the institutional experts (from the Ministry and from the Academia) formulating 10 main areas, or aspects, of the off-road traffic legislation problem. This was an initial problem-mapping, to be then submitted to the public ("the crowd") for commenting and possibly complementing it. A website was created for the public participation, based on the IdeaScale crowdsourcing software. In order to become participants, users had to register with their verifiable email

address; they could do it under their real names, or under pseudonyms, or else, could remain anonymous.

In the first three-month phase (January–March 2013), participants proposed ideas concerning any of the ten aspects predefined by the experts and could also comment and vote on each other's ideas. They could also specify a new aspect (of the off-road traffic problem) if they found it was not already covered by those ten expert-defined topics. In total, 340 original submissions were posted, with 2600 comments on them and 19,000 votes. This can be considered a rather intense activity, though the number of active participants remained relatively modest, just 700. At the end, a group of expert-researchers had manually sorted all this mass of textual contributions, in order to refine the problem considered and its different aspects, or challenges created. This long and laborious task took a whole month of work of several teams of researchers, experts and civil servants.

The second crowdsourcing phase took another two months (May–June 2013). Here, participants were invited to suggest their solutions to the individual challenges presented by the general off-road problem. In this phase, the same 700 participants submitted 170 ideas (half the number of the Phase 1 submissions), with half the number of comments (1300), and one-third of the number of votes (6000).

It is to be noted that participants, despite their presumably opposing interests, were generally posting moderate and reasoned comments; among the total of 4000 comments, only 20 (half a per cent) had to be removed by the moderators.

Then started the third phase of the “Finnish crowdsourcing process”, in which registered participants were asked to evaluate the ideas generated in the previous phases and *randomly dispatched* to them. This phase took approximately four months.

Important detail: when evaluating an idea, every individual participant had no information on how others evaluated the same idea, and hence, how “popular” it was. These idea popularity counters were calculated by the system, but made only known to the body of researchers, experts and civil servants, for a subsequent draft law editing.

Our Analysis of the Above-Presented eParticipation Cases

A number of lessons can be drawn from the above three examples of large-scale public political participation. These lessons also apply to a few other known cases. They relate to the context where such an event or campaign may happen and may attract a large number of participants; to the nature of the issue to be resolved; to the succession of stages and events that make up the whole campaign; to the methods and procedures that have been used (or not used) at different stages; to the role of experts in the field of the issue; and finally, to the place and scale of interparticipant deliberation in such a campaign.

1. A triggering event or condition. Our first observation is that every successful large-scale public participation event is typically triggered by an acute resentment, sometimes indignation, within the concerned community, mostly by some actions (or inactions) of the authorities; or else, by a long-lasting tension between its different factions. Until now, this was a *condition sine qua non* for a large public to participate.

Indeed, the *topic or issue to be discussed and resolved* is directly related to this triggering condition. If, on the contrary, we try to launch such an event around a topic which is not controversial and, at the same time, not really urgent, such as the global warming (a topic generally perceived as non-controversial) or the continuing decrease of biodiversity (a topic perceived as latent and not urgent), then we risk to attract just a few geeks or enthusiasts—because the large public would consider that there is nothing here to discuss, and, if needed, a simple ePetition would suffice.

2. The role of the authorities. Next, in all the above cases we observe the active role of the authorities, instrumental in assigning some level of institutionalisation to the participation event or campaign. If there is disagreement between different branches of power (as in the Icelandic and Estonian cases), then an active and well-organised NGO would become instrumental in setting up and managing the whole event, with the consent of one branch of the power. Institutionalisation of the participative platform and of its managing structure is necessary for creating a common feeling, or belief, or confidence among potential participants that they would not spend their time and efforts just for chatting - as they already do in the social media.

Presumably, an overtly oppositional participative campaign could also become populous, being fed by another kind of expectations, namely expectations to force the authorities of doing or not doing something, or even expectations to change the authorities or to overthrow them. In the present chapter, we do not expand on this scenario, because it needs many specific features to be considered, such as the problem of strong authentication of participants without having access to their records in the national register.

3. Large information and advertising actions, both before and during the participation campaign, both in the traditional (newspapers, radio, TV) and in the online media. In each of the above three cases, the impact of getting the large public informed in a timely, correct and positive way is hard to overestimate.

Presumably, every specific participation campaign will need massive advertising, until some future time when citizens would get so well acquainted with regular participative practice that they would just check the agenda of upcoming participative events as they do it today for weather forecasts.

4. Initial promises versus final results. To draw many people into participative activity is just the beginning. At the end, participants should not be left dissatisfied with the results. For a one-time campaign this means, in particular, that the authorities should keep their initial promises; that is, they should be able and willing to enact or to put into practice the decisions of those who have participated. In this regard, the Icelandic case was rather dissatisfactory: at the beginning, the Parliament's ruling majority was not able to secure a sufficiently high status of the

National Forum and of the Constitutional Council; then, the conclusive referendum was set as non-binding; and finally, the majority in Parliament failed to pass a bill that was necessary for ultimately enacting the new constitution. The Estonian campaign was more successful, despite the fact that the enactment of the campaign results by Parliament was delayed considerably; the same is true of the Finnish campaign.

Our point is that, when in a given community one participative action fails to bring tangible results, the problem is not limited to this specific failure, but the public is put off for a long time from any further participation.

5. A *multistage process*. Each of the above three campaigns went through a sequence of stages. Each campaign started with some preparatory actions (“Phase 0”), which were indeed context-dependent and hence not the same in all cases. The subsequent phases can be roughly characterised as follows:

Phase 1: *ideation*, when a mass of crowdsourced proposals, suggestions and opinions is received from citizens, with or without deliberation or deliberation-like discussion among them. In the Icelandic case, it was a one-day live National Forum, whose 950 randomly selected participants deliberated in small groups under the guidance of trained moderators. In Estonia, it was an exclusively online activity open to every registered citizen, with a possibility to comment on each other’s posts; the resulting 6000 contributions (proposals and comments) were *manually sorted* by a staff of facilitators. In Finland, the same activity had been performed in two subphases (the first aimed at producing more elaborated requirements, the second aimed at collecting proposals), both with a possibility to post comments on each others’ ideas; the total of approximately 500 ideas and 4000 comments were, as in Estonia, manually sorted by a staff of facilitators.

Phase 2: *editing* (or *consolidation*), when a number of *edited proposals* is produced, competing with each other or complementing each other, or else, one multipart proposal that takes into account (some of) the suggestions submitted in Phase 1. Citizens’ comments are invited, but not necessarily considered at this stage. In Iceland, it was done by a small group of *elected* editors, open to public comments, which may or may not be taken into consideration. In Estonia, it was a much longer and more elaborated process, involving a number of experts as well as the authors of the most advanced proposals; the latter were invited to participate in one-week meetings with the experts. At the end, 18 edited proposals were delivered. In Finland, this editing phase was simply *absent*.

Phase 3: *evaluation of edited proposals* by the citizenry, with or without deliberation among them. In Iceland, this phase was absent, because in Phase 2 just one common proposal had been prepared. In Estonia, it was a Deliberation Day similar to the Icelandic National Forum at Phase 1, but devoted in this case to the deliberation on edited proposals, and not on initial requirements or ideas as in the Icelandic case. In Finland, a different and rather original method was applied, when the whole mass of crowdsourced suggestions was evaluated by assigning every individual suggestion to a few *randomly selected evaluators* from among the registered participants.

Phase 4: *selection of winning proposal(s)* by the citizenry; this phase is sometimes merged with Phase 3. In Iceland, it was a referendum on whether to accept or reject a single proposal prepared in Phase 2. In Estonia, the selection was done in Phase 3. In Finland, selective support of initial suggestions by random participants (see Phase 3) was used as an input in the final editing of the draft law, which was performed by the Ministry of Environment and/or in the Parliament, with no involvement of the large public.

6. *Involvement of experts and facilitators.* Experts played an essential role in each of the examples. Depending on the case, experts in the specific field under consideration, or legal experts, or both were involved. In Iceland, only the drafting of the constitution by the elected 25-member Council was supported by experts. In Estonia, experts were partly involved in sorting the initial proposals (at the end of Phase 1), but more heavily in the editing of 18 consolidated proposals, working first by themselves and then in small groups including some of the proposal authors. In both cases, invited experts worked *pro bono*. In Finland, the experts' involvement spanned several months, from the initial phase of formulating the main aspects of the issue to be resolved, through both subphases of Phase 1, when they participated in categorising (or clustering) the mass of citizen-generated inputs.

Apart from experts, many other categories of "auxiliary agents" took part in each of the above three campaigns, performing the tasks of moderating discussions (mostly in face-to-face small groups, but also online), of filtering, sorting and ranking participants' proposals, and also of taking part in the consolidation and editing of proposals.

An important note: the experts work for the whole community of participants, by providing background information and by helping in editing a small number of consolidated proposals; hence, their number is not expected to grow significantly with the growth of the community. In contrast, moderators and facilitators work with individual participants or with their inputs; or else, they moderate small-size deliberation groups. Hence, their staff may grow considerably, most probably in a linear progression, with the growth of the participative community.

Are Social Media like Facebook an Appropriate Tool?

One of the most frequent objections to the concept of a specialised system (web application) on a dedicated website devoted to political online participation is that popular social media like Facebook already are a widely used platform, where political discussions happen every day and every hour; hence, inviting people leaving it for another place would be simply unproductive. According to this approach, the only thing we need is an efficient mechanism of searching the social media for expressions of citizens' opinions, and for fragments of discussions, relevant to a given issue of interest.

An additional argument in favour of this "stay on Facebook" approach is that, while users deliberate rather informally on Facebook and on other social media, without any strict procedure, moderated only by the owner of a given personal page

or, say, by the administrator of a given Facebook group, these same people would not understand and certainly would not accept any formal procedure or too strict a moderation, depriving them of the “freedom of expression” they are used to.

We are, however, rather doubtful about the usefulness of social media for holding purposeful political deliberation. To begin with, let us look at the three above examples of a large-scale political participation campaign. Each of them opened a dedicated web page, which was considered the main venue of the campaign; a parallel Facebook page, if any, played only accessory role.

In Iceland, there was no strong authentication of participants (for, there exists just a handful of people outside this country who speak Icelandic). Their decision to double their official site with a designated Facebook page, and also to permanently search Facebook for sporadic occurrences of relevant posts or comments, was practically justified and hopefully not harmful: due to a remarkable cohesion of the Icelandic citizenry, the campaign organisers have not experienced any spam, flooding, trolling, or any other ill-intentioned actions online.

In the Estonian campaign, where strong participant authentication was required (and was facilitated by ubiquitous use of national digital identification cards), a dedicated website was the only solution, as Facebook does not offer this kind of authentication. Indeed, people largely discussed the campaign issues on social media; however, those discussions appear to have been totally disconnected from the more formal deliberations on the official site.

The Finnish campaign, similarly to the Estonian one, was limited to the use of a dedicated site, though authentication (via a verifiable email) was not strict in this case.

In all three campaigns, visiting a dedicated site and even passing through a separate registration procedure was not a problem for users—provided they felt concerned with the issue being discussed.

Let us now move on to considerations developed in the academic literature. In her analysis of the attitude of social media users, Tanja Storsul (2014) shows that a large majority of those users (mostly young people) are permanently concerned with their *self-presentation* to others rather than with the issue they comment:

They are concerned about how they present themselves, and they are reluctant to stand out as highly political. One important explanation for this is that social media integrate different forms of communication and collapse social contexts. This causes teenagers to delimit controversies and try to keep political discussions to groups with more segregated audiences.

So, when teenagers express their political opinions, or even when they repost some information on their Facebook pages, they most often do it to the attention of *all* their FB “friends”, including their families, past-time schoolmates, colleagues and others.³ This is what has been called “collapsed social contexts” by Marwick and Boyd (2010). In such an artificially created context of online social media, every person feels exposed to everybody’s stare and glare and inevitably shows, with rare exceptions, a conformist, lowest possible profile in the “time of peace”.

³Interestingly, while FB offers a possibility of selective posting to a specified category of one’s “friends”, this option is rarely used by FB subscribers.

This indeed does not exclude fervent activity and coordinated collective actions at special moments of common mobilisation, in the “time of war”, an activity which, by the way, can also be largely conformist.

This is an argument in favour of a specialised participation site, with a separate registration, possibly under a pseudonym, thus offering to everybody a possibility of creating his/her *online political identity*, which may differ both from their physical identity and from their identity within the realm of online social networks. Of course, if the deliberation outcome is to be politically/legally binding, some form of strict identification is necessary (i) to avoid double or hoax registrations and (ii) to ensure that only those persons participate that are supposed to.

Our second argument is that Facebook, as well as other *popular* social media platforms, lacks appropriate support for structured discussions. In fact, every personal page on FB, and even any FB group page, looks and behaves like a linear news feed. Any attempt to create threads for separate discussion topics leads to rather complicated structures and rules based on conventions difficult to mind and to follow. This is the opposite of what we need as an ICT support for meaningful, structured and purposeful deliberation.

Going further, we would just like to cite some of the recent scholarly papers that emphasise an inherent *danger* of the under-the-surface algorithms, which are able to *shape* communications on Facebook or on other social media platforms:

We are concerned that the interface design and discursive structure in Twitter and on Facebook groups, pages, and profiles might serve to undermine the potential for third spaces to form [Write, Graham and Johnson (forthcoming)]. The power of Facebook should not be ignored. The interface design of the Facebook pages and the algorithms working beneath the surface configure the power relations between participants in the discussion. Facebook is anything but neutral in that it hinders equal access and opportunity, making only a few users visible (and thus heard) and stimulating the formation of like-minded publics through algorithmic filtering (van Ees et al. 2014).

Consider, in addition, the fact that Facebook or Twitter or any other *popular* social media platform is run by a commercial, for-profit structure, which cannot be obliged to disclose details of those “beneath the surface algorithms” or to modify them following a public request. Moreover, it can rudely interfere in a discussion, by simply blocking, or even deleting, one’s comment or a whole page. Facebook, by far the largest of today’s social media platforms, is operated by a private enterprise under US law and is notorious for abortive actions, at times possibly politically coloured. Just a couple of well-known examples:

- In 2012, the Facebook page of the city of Munich suddenly disappeared without any reason given (Süddeutsche 2012)
- In 2013, the Facebook page of H.C. Strache, an Austrian opposition leader, was blocked without notice or reason given, and unblocked only a few days later; allegations circulated that this was because of Strache’s criticism of the NSA eavesdropping programme (Der Standard 2012).

All the above facts and arguments give us full reason to make the following claim:

Popular social media platforms, where most people spend much of their time talking about everything including politics, cannot be considered as an appropriate, convenient, and legally acceptable venue for purposeful and potentially institutionalised deliberation with politically and/or legally binding outcomes.

The MOD Paradigm versus Deliberative Polling

The “Deliberative Polling” method has been developed by James Fishkin (1991, 1995) and largely used since then in several countries and on various occasions. In short, it consists of jointly exploiting the paradigm of “political representation through random selection” and the paradigm of deliberation in several small mediated groups. It aims at exploring, both qualitatively and quantitatively, public attitudes and opinions on a given controversial issue.

The process starts with performing a Gallup-style random sampling of a given population and with collecting from the selected respondents (who are typically in the order of a few hundred to one or two thousand) their *initial opinions* on the issue and on its specific aspects, e.g., in a form of a questionnaire. Then each of the respondents is asked whether they would be interested in attending a face-to-face meeting, typically lasting one weekend in a country-side resort, to discuss the issue with others, and whether they could attend it, provided that the costs are born by the organisers.

From those who agree (typically about one half) a subset is further selected in a way as to maintain the social distribution of the initial Gallup selection. Each of the candidates receives (by (e)mail or otherwise) a short brief prepared by experts in the field and containing a balanced presentation of basic information on the issue, and a list of proposed solutions or alternative opinions. This information is supposed to be studied by the candidates at home and possibly discussed within each one’s personal circle, for a few weeks before the planned meeting.

At the meeting, the selected participants are divided into small groups, every group being coached by a trained moderator. After a plenary presentation, those groups *deliberate* on the issue separately and independently from each other, for most of the meeting time; at the end, a confidential vote is held in every group, to fix the new preferences of its members, possibly changed as a result of the deliberation. The meeting ends with a plenary, where the updated preference counters are presented to the participants. These, together with the record of their changes in the course of the deliberation, are then analysed by researchers and/or forwarded to the relevant decision-makers.

In a typical case, these results are also reported in the mass media; according to Fishkin and Luskin (2005), the large public (all those who this time have not been randomly selected) may be somehow instructed and directed by this information,

which would give them a suggestion on how the community would have voted on the issue if everybody had been properly informed, had thought twice, and had discussed the issue not only with their friends but also with people of initially opposing opinions.

Without criticising Fishkin's approach and method regarding its results achieved towards the goals stated, we would like, however, to discuss its applicability as a method of public participation in policy-making, which could potentially become institutionalised.

First and foremost, a Deliberative Poll is based on a random selection of participants from among the whole community concerned. Such a random selection, if properly performed, indeed provides a statistically meaningful sample, that is, in some terms, "representative" of the whole community. However, this mathematical fact is obvious for well-educated people only, while the very same well-educated people, at least those among them who care about the issue to discuss, would certainly prefer to have been given an opportunity to speak themselves about the issue, rather than just being an element of a dataset for this random selection.

We should state that the two hundred years of life under what is called representative democracy have instilled everybody's mind with the idea of participating in person in the decision-making, even when their participation is reduced to just voting at the next elections. Today, ordinary citizens would hardly accept decisions taken by a randomly selected body as fair and "representative" ones. Instead, they would feel that other people, who have drawn the lot, either "occasionally" or by God's hand, now take decisions in place of, and in the name of all others. For, today, people are increasingly tired of the whole idea of "being represented by somebody"; hence, simply replacing this idea with that of "being part of a dataset for statistically accurate random sampling" would not work either. *We hold that people want a larger participation, rather than a more accurate representation.*

An additional point is that the public may feel doubtful as to whether the random selection was fair and non-biased, and/or whether the moderators of the small groups behaved fairly and without bias, etc. This was not the issue in the above Icelandic and Estonian cases, for two specific reasons that have no chances to occur every time at every place. First, both the Icelandic and the Estonian public have shown an outstanding homogeneity and integrity; second, in both cases the whole process was controlled by a well-established and largely respected NGO above any suspicion. In a large country with a less homogeneous population, this would probably never be the case.

Hence, Deliberative Polling, however good it might be as a method of providing the authorities with an insight into *informed* public opinion, is actually not suitable as a public participation tool sufficiently legitimate in the eyes of the general public.

Furthermore, if the community, or the authorities, look for a good if not optimal solution to a given problem, then *crowdsourcing*, a relatively new idea though already proven to be efficient, simply would not work within a Deliberative Polling event. There is indeed an option—to launch a separate crowdsourcing stage, plus an intermediate "consolidation stage", prior to a Deliberative Poll around a shortlist of a few consolidated proposals or opinions.

This method was wisely applied in the Estonian case. Here, Deliberative Polling was not used as a method of taking a final decision, but just as a method of providing the real decision-makers (Parliament) with a reasonably good approximation of what the Estonian citizenry would accept or prefer among the previously elaborated solutions, if they all were properly informed and had an opportunity to deliberate.

Now we arrive at our main question—can we consider deliberation in several small groups, whatever organisational method is applied for managing each of them, a good model for a large-scale deliberation campaign? For, in such a large-scale deliberation on an issue, new ideas, suggestions or proposals may appear within every societal segment and within every small group; and every such suggestion may attract comments, e.g. supportive or critical arguments, from people across the whole community. Any fragmentation of this naturally integrated “deliberation space” would be harmful for several reasons.

First, it would make it harder for new ideas to penetrate the whole deliberation space; hence, the “field of vision” of every participant would become narrower.

Second, deliberation in each individual group would naturally produce some “most supported” opinion, accompanied with one or more “minority opinions”. All these opinions, including minority ones, should then be distributed to all other groups, and, at the end, integrated across the whole deliberation space. Some algorithmic machinery is therefore needed, to maintain the deliberation space as an integrated whole, regardless of whether those small groups do exist or not.

Third, any deliberation should be somehow moderated; and, if moderation is performed in small groups by designated human agents (trained moderators), as in any Deliberative Poll, then a really large-scale deliberative event (say, with 15 thousand participants) would need one thousand moderators—a number that could hardly be attained even in an exceptional situation.

To solve the above problems, our MOD model defines an integrated deliberation space, where every participant deliberatively addresses the whole community, and gets back deliberation data, somehow integrated, from the whole community. “Somehow integrated” means a set of backstage procedures that work permanently, or at regular intervals, on the whole space of deliberation data (proposals, comments, appraisals, etc.) produced by individual participants.

The task of moderating such a large integrated deliberation is uniformly distributed, according to the MOD model, among randomly selected participants in a deliberation. Occasional unfair moderation actions can be corrected using an arbitration mechanism.

In this integrated MOD model, Deliberative Polling can still be used, as it was done in the Estonian experiment, at the end of the whole multistage process, optionally replacing a referendum when a final decision is to be made by any “classical” institution like a Parliament.

We conclude this section with a rather general consideration about discretionary participation (i.e. by self-selection) by citizens according to the MOD model, as compared to random selection (presumably fair and statistically representative) according to the Deliberative Polling model. Self-selection is seemingly non-representative, in a sense that its results are biased towards the most active, more engaged, more personally concerned citizens, and sometimes even those who

receive some kind of reward for their (possibly unfair, insincere or biased) participation. If we do not consider the latter case (which cannot be avoided anyway, as even randomly selected participants could “sell” themselves to, say, a commercial entity interested in a certain outcome of a deliberation), then the question is — how strongly self-selection biases deliberation outcomes, as compared to random selection taken as reference model.

We have no direct experimental data, to answer this question in a definite way. However, a very interesting observation is provided by Fishkin and Luskin themselves, in their above-cited paper (2005):

We start with high-quality random samples, and then compare the respondents who choose to attend, an admittedly self-selected subsample, with those who do not. Both demographically and attitudinally, the statistically significant differences are remarkably few and typically modest. The participants are generally a bit older, better educated, and more interested and knowledgeable about the topic than the nonparticipants, but not too much. The usual biases in self-selection appear to be nearly erased by the unusual incentives for participation...⁴

This observation shows, in our view, that our expectations to build a deliberation system based on a non-biased self-selection (with, if necessary, an appropriate incentives scheme) are indeed well-grounded. In this way, the two approaches until now considered as incompatible—that of self-selection for open deliberative crowdsourcing and that of random selection for representative deliberative opinion-formation—would finally merge into one universal model. In the remaining sections of this chapter (Part I), we draw the main traits of such a universal model, while its implementation is described in Part II in more detail.

Requirements for MOD System, Process and Procedures

For obvious reasons, a large-scale deliberation (with, say, thousands or more participants) can only be implemented as an activity that progresses online, asynchronously, and in writing. For, only in this way we would be able to give “voice” to all participants who may wish it, and—which is of no lesser importance—to provide them with at least theoretical possibility to “listen” to each other.

Furthermore, for a large-scale deliberation to be efficient and productive, it needs (a) well-designed procedures for maintaining it orderly, purposeful, mutually respectful, and also “economic” (i.e. time- and effort-sparing), and (b) specially designed ICT-instruments to enforce application of such procedures.

In order to better substantiate our design choices (which will be presented and discussed on the following pages), we start with formulating a list of *preconditions*

⁴Here, we cannot resist the temptation of reminding a famous precedent—the *political pay* installed in the late fifth century BC in Athens, rewarding those citizens who attended the meetings of the Assembly (by self-selection, not by random selection, as it is sometimes wrongly claimed) —see Aristotle, Constitution of the Athenians (or *Athenaiōn Politeia*) 41.3.

for creating a context where a MOD may happen, and of *requirements* for the deliberation procedure to progress in a democratic, purposeful and economic way.

Preconditions for a MOD to Happen

These are our requirements for a *context* in which a MOD can be initiated and progressed, by attracting a large and representative part of a given community. Each of them has been extensively discussed in Section “[Our Analysis of the Above-Presented eParticipation Cases](#)”, so they are only listed here for easy reference. We use “deliberandum” as our neologism to designate a given deliberation campaign on a given issue within a given community. A deliberandum is a *process* that has a start date and a termination date towards which it progresses through a number of consecutive stages, or *phases*.

The first two of our preconditions start with “select”; this, indeed, makes sense only if we are looking for an appropriate context where to perform a pilot deliberandum (i.e. a real-size experiment) for a newly developed MOD system. When, however, a situation necessitating large-scale public debates and decision-making has already occurred, then the preconditions (a) and (b) should be understood as a preliminary check of a given context, rather than as a context selection principle.

- (a) Select a *community* (territorial, professional, other...) potentially appropriate for a deliberandum to take up. Provide a means for identifying the members of the group and provide them with a “log-on” into the system. This can be a major challenge in large-scale deliberation.
- (b) Select a “hot” *issue* (problem, question, topic...) that would attract a large number of the community members into its deliberation. Different issues should be discussed separately, in different “online deliberation rooms”. Two or more issues can be staged for simultaneous deliberation (in separate “rooms”) only if their expected audiences are mostly disjoint, since parallel participation in several *deliberanda* would be too time-consuming and hence impossible for many participants.
- (c) *Inform*, popularise, raise awareness of the community about the upcoming deliberandum. Everybody should be covered by this advertising campaign, and nobody should have a reason to say: “The issue is of concern to me, the event would have attracted me, but I haven’t been properly informed, and the same applies to many other people I know...Therefore, your decisions are illegitimate”.
- (d) Prepare a *knowledge base* on the field of the topic selected—both factual and conceptual—to the attention of the future deliberants. Here, the role of (academic) *experts* should be elicited and methods to achieve their impartial (or balanced) input should be proposed.

- (e) If the selected community has its institutionalised decision-makers rather than follows some self-governance practice, obtain from those decision-makers a clear *commitment* that the options or decisions that would result from the deliberation will be taken as the *binding* ones (maybe for this time only), or at least will be most seriously considered by the decision-making body. Such a commitment should be made known to the public during the advertising campaign, to attract the more sceptical among the community members.

Requirements for the Deliberation Procedures and the Supportive ICT-System Functionality

Now we move on to the requirements for the deliberation process and procedures. We start with the most general principles already set up at the very beginning of this chapter. These are *fairness* (everybody's input should be considered according to its intrinsic value, and not to its author's "social reputation"), *productiveness* (deliberation should progress towards a consensus, or towards a shortlist of well-defined distinct alternatives) and *economy* (of time and efforts spent by the participants).

From these three basic MOD principles, a set of more detailed requirements can be drawn. It is to be noted that a carefully designed ICT-system for supporting online deliberations *should and can do much more than* simply restrict or forbid harmful actions of ill-intentioned participants and establish some order for all other actions. Rather, by using various algorithmic features based on (i) random distribution and selection of participants and of their contributions, (ii) on *deliberation graph* analysis and clustering, (iii) on dynamically updated and reconsidered participant activity and trust counters, and other parameters, such a system should privilege and promote deliberative behaviour of participants, thus making the whole deliberation fairer, more productive and economical. Hence, our somehow weak and vague requirements starting with "promote", "provide for", etc., should indeed be taken into account and implemented in the ICT-system. With that in mind, let us go through their list, indeed incomplete:

1. Promote *thoughtful, informed and fact-based* discussion,⁵ as opposed to participants' spontaneous self-expression.
2. Promote participants' interest in the *whole spectrum of proposals and opinions* presented, as opposed to self-seclusion within a small group supporting one given idea. Provide systemic means to combat "self-seclusion".
3. Manage participants' *limited attention*; to this end, provide them with a clear image of the entire spectrum of opinions currently "on the table", somehow

⁵This could for instance include web-based simulation tools, whereby participants can check the effects and the validity of their own proposals and those of the other participants. For the design of such a functionality, see Prosser and Müller-Török (2011).

grouped or *clustered* semantically, and also *ranked* according to their appreciation by participants.

4. Provide for *economy of efforts*: participation in a large-scale public deliberation should be practically achievable for every individual participant at their leisure time, rather than occupying them as full-time professionals.
5. Grant every participant's contribution an *equal chance* to be seen and properly appraised as a function of its quality, regardless of the size of the participant's own supportive "claque", or of his/her past achievements, or of the posting date and time, or even of the total number of competing proposals/opinions. This requirement basically concerns *fairness* in deliberation.
6. Maintain appropriate visibility of *minority opinions* along the deliberation process. The importance of this requirement lies in the fact that, in a classical deliberation model, if a proposal or opinion fails to gain large popularity and support within a short time after its publication, it then falls into oblivion. Our concern should be therefore to keep minority voices well-heard during the whole deliberation.
7. Provide for *robustness* of deliberation, and in particular defend it from "mob attacks", when a large number of otherwise not very active participants suddenly emerge for performing an orchestrated action. A large open discussion on a topical political or societal issue will inevitably attract many people, or lobbying groups, or political forces, or astroturfing (see Ertl 2015), which would try to distort the normal course of deliberation, and to turn it towards their desired outcome, by using various methods of coercion, evil intent or even concerted obstruction. We will find ourselves far away from Jürgen Habermas' idealised non-coercive and thoughtful communication. To get closer to that ideal in a really open public context, we can do nothing but to install some protective measures.
8. Offer participants some kind of *incentive* for their meaningful participation, and in particular for their civic and "deliberative" behaviour. Such "virtual incentives" may sometimes be transformed into real ones (e.g. of a kind of "political pay" as existed in Ancient Athens, as mentioned above in a footnote).
9. Provide participants with further incentives, and also with appropriate *tools*, for passing from open deliberation to *collaborative development*, in order, for instance, to merge or evolve their initial proposals towards a more developed stage, with the aim to converge a potentially very large number of initial proposals into a "shortlist" of irreducibly distinct, and possibly conflicting, final proposals (see Velikanov 2010a, b).
10. Establish balanced interaction between *experts*—those who are knowledgeable in the field of the issue under discussion—and "ordinary citizens" whose actions and choices are based not only on knowledge, but on each one's *values*, convictions and even beliefs, not to mention their personal *interests*.

Why not Rely on Automated Text Analysis Tools?

The mechanisms of large online deliberation, which will be presented and discussed in Part II, deal with *texts*. One can imagine more or less automated processing of a large number of participants' contributions by appropriate algorithms coming from the artificial intelligence (AI) and natural language processing (NLP) fields. These may include, e.g., *argument mining* (for discovering argumentation elements in deliberants' contributions),⁶ or *sentiment analysis* (for discovering inappropriate verbal expressions), or else, *automated translation* (for the case of multilingual deliberation).

Automated NLP tools indeed have made significant progress in the past few years and are expected to achieve yet more in a foreseeable future. Today, however, they still deliver rather approximate results, which are yet less convincing when the texts are to be discriminated or evaluated not on their *content* (i.e. the field or theme to which a given text relates) but on their *intent* (what its author wants, or suggests, or prefers). Also, it is unlikely that automated tools could soon, or maybe ever, learn to recognise *irony*, which is indeed largely used in political debates.

This is why our approach is to develop procedures and algorithms based mainly on *human* analysis and understanding of texts appearing in the course of a (written) deliberation. Indeed, NLP tools sometimes can help human agents by providing them with a first, and maybe incorrect, approximation (as today it is done with automated translation); but the real judgement should always come from humans. Our proposed algorithms for clustering and per-cluster ranking of proposals and opinions are therefore analysing not the texts themselves, but some metadata (appraisals, maybe also tags in future versions) designed for use by those specific algorithms and attached to source texts by humans. For, if a participant claims that his or her contribution had been improperly handled by “the system”, he/she should never be answered (as it happens sometimes with automated government services to citizens)—“Oh, it’s not our error, it is *the computer* who did it that way”.

Summary

In this chapter, we analysed the challenges to conduct large-scale deliberation processes and investigated some models and recent experience from several countries. We were particularly interested in the level and scale of deliberations within the cases studied, and we found that in all those cases deliberation, if any at all, was conducted within small, randomly selected groups of participants, each group being managed by a trained agent; and the groups' output was then categorised by a staff of trained agents. We concluded that, due in particular to this massive use of external personnel, none of the models so far applied could scale up

⁶For the state of the art in argument mining, see (Lippi and Toroni 2016).

above a few thousand participants. On the other hand, we found that, for several reasons, the social media, as a service and as a platform, are not suitable for conducting large-scale deliberations, especially those aiming at providing legally acceptable output. From all these findings, we deduced that a totally different procedural model is needed, which would define a *Mass Online Deliberation* (MOD) as a mode of integrated communication of the whole community, regardless of its size, in one common “room”, with everybody addressing the whole community and having an integrated vision of the deliberation results of the whole community. From these considerations, requirements for MOD were derived, reflecting the most natural and most desired qualities of large-scale deliberative political participation.

In Part II of the chapter, we give a detailed description of phases, procedures and backstage mechanisms that would turn this MOD concept into reality, while satisfying our stated set of requirements.

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Mass Online Deliberation in Participatory Policy-Making—Part II

Mechanisms and Procedures

Cyril Velikanov and Alexander Prosser

Abstract In this Part II of the present Chapter, we describe the stages (or phases), mechanisms and procedures of a MOD process, in accordance with the requirements set forth in Section “[MOD Paradigm Versus Deliberative Polling](#)” of Part I. Our task is to provide an MOD blueprint for an ICT-based MOD platform that almost immediately lends itself to system implementation. As in Part I, we use the neologism *deliberandum* to refer to a given instance of mass online deliberation, that is, to a process of deliberating online within a given community, on a given issue, and within a given period of time.

Design Choices

1. No External Moderators and Facilitators. A large-scale open online deliberation could only progress if a number of “house-keeping” procedures are installed, to satisfy the above requirements of *robustness*, *fairness*, and *economy of efforts*. However, a classical solution of appointing a staff of designated external moderators (and of other facilitators) becomes inappropriate, when dealing with a large-scale open “political” discussion on a contradictory issue. For, if such a discussion were really largely followed by the public, every “staff decision” would then be considered by many as unfair and biased. Dealing with such disputes would take time, and just dropping them would impair legitimization of deliberation results. The only solution is therefore *self-governance*, when decisions like promoting some

C. Velikanov (✉)
International Memorial Society, Moscow, Russia
e-mail: cvelikanov@gmail.com

A. Prosser
Department of Informations Systems and Operations, WU Wien,
Vienna University of Economics and Business, Vienna, Austria
e-mail: prosser@wu.ac.at

contribution, or banning another one, are taken by participants themselves, and more specifically, by *randomly selected* ones. Participants, therefore, will be expected to perform, from time to time, some actions requested from them by the system.

2. Role of experts, and their selection. Regarding the experts (in the field of the issue selected for deliberation) we have a whole list of questions to be solved, probably in different ways depending on a given context: Who appoints those experts? Should they preferably come from academic circles? Should they be remunerated, or volunteering experts? How to achieve their impartiality, or else, a balanced composition of their panel? All these questions could probably be answered in an appropriate way only after a number of deliberation pilots have been held in different countries and in different contexts. Hopefully, the choices to be made regarding the definition of the role of experts would not severely impact the deliberation procedure.

3. Participants' Identity Management. In order for the deliberation results to be legally recognized, a *controlled registration* may be required—in order to avoid duplicate, fake, unauthorized (e.g. not residing in a city where a deliberandum is run about some local issue) or minor participants. This may be achieved by providing identity data and comparing them (only once) with the appropriate national registry. In this way, a one-to-one mapping is established between the set of participating physical persons (subset of all capable citizens of a given constituency) and the set of their corresponding “virtual persons”. Confidentiality can be preserved by one-way ciphering, so that only the participant him/herself can subsequently prove his/her “real” identity.

As an option, the author's identity (including the pseudonym) may not be revealed at this stage, to enable an unbiased initial appraisal (evaluation) of the proposal (see below). Here however, we see the problem that participants may be reluctant to comment on what is still an anonymous proposal until it has passed the initial evaluation. On the other hand, postponing publication of the contribution until it passes anonymous evaluation may introduce unacceptable delays. Hence, an alternative consists in revealing the authorship of a proposal from the beginning, which means that its initial evaluation will not be done anonymously.

4. Participants' reputation management. For every participant, a number of counters should be dynamically maintained by the system, to reflect his/her activity for, and his/her behaviour towards peer participants in the deliberation. Some combination or function of those elementary counters may be called the participant's *reputation*. Here are a few important reputation elements that we will exploit in the description of the deliberation process:

- Responsiveness to system requests, such as requests to evaluate a contribution, or to act as moderator;
- General activity counter (which itself can be calculated in various different ways);

- *Trust counter*, indicating to what extent decisions made by the participant have been accepted or contested by others.

The participant's current reputation may have an influence on which actions the participant is authorised to perform at a given moment. In this way, a whole system of *incentives* for participants could be defined, gratifying them for their reasoned deliberative actions, and penalising them for any impediment to the normal course of deliberation. The whole subject, however, needs an extensive study, including a number of field experiments with different options to test.

Modelling a MOD Campaign (a “Deliberandum”) as a Multi-stage Process

Public deliberation should be a multi-stage process; this issue has already been largely discussed elsewhere, see e.g. (McBurney et al. 2007). Existing approaches, however, define deliberation phases in a way that is not the most suitable for a very large-scale deliberation. In the above-cited work, in particular, deliberation phases are too short and too specific for being correctly understood and properly followed by participants who are not familiar with deliberative systems or the mechanisms used.

In our proposed model, therefore, the process of mass online deliberation unfolds in just five large stages, or *phases*, as depicted in Fig. 1. The preparatory Phase 0 comprises a number of online and offline actions to be performed before the launch of a given deliberandum. The deliberation proper starts in Phase 1, in which proposals on how to deal with the given issue are moved by participants, evaluated and commented by them; the outcome of this stage is a clustered collection of individual proposals and comments. In Phase 2, editing of the proposals is done separately in every cluster; ideally, it should result in one consolidated proposal per cluster. In Phase 3 (reconciliation), those cluster proposals that are close, or can be made closer, to one another, are merged as far as possible, in order to produce a minimal set of irreducibly different proposals, each of which is supported by a large part of the deliberating community. These are finally voted on (Phase 4), and the winner of this vote is the proposal openly and collaboratively developed in this given deliberandum.

Phases 1, 2 and 3 need, or may need, a rather specific procedural implementation with extensive ICT support. One such implementation is described in the next sections of this chapter. Alternative implementations of our general MOD model may indeed be devised, based on a different procedural framework though still in conformance with the general requirements.

In contrast, the set of preparatory (in Phase 0) and conclusive (in Phase 4) actions would heavily depend on a given *context*, in which a large-scale deliberation is conducted. Some of those actions may need specific ICT support and procedures, while others may be performed by unsupported human staff in a less

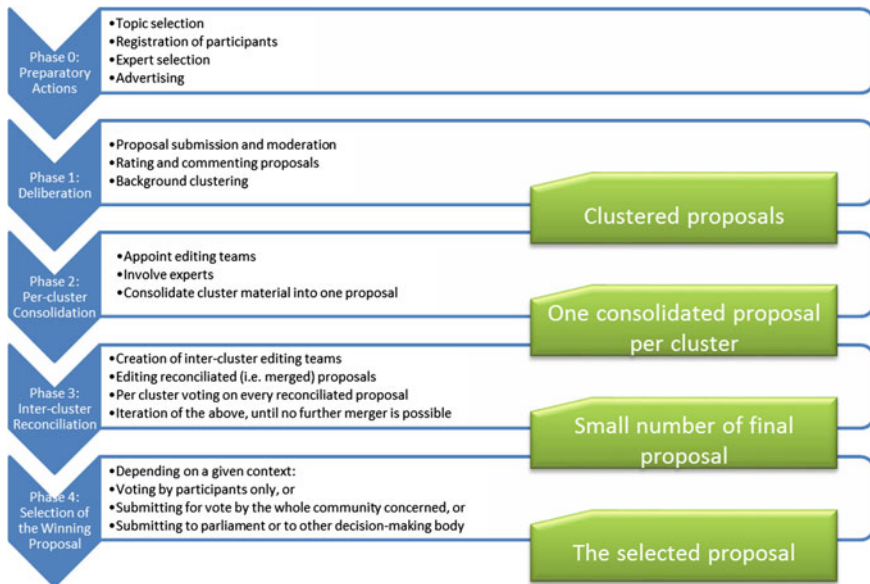


Fig. 1 Phases of the deliberation process

formalized way. In the next section, we discuss some of the many possible contexts of use of MOD, describing for each of them the most natural way to prepare a mass online deliberation, and then to use its results.

Preparatory Actions (Phase 0)

1. Authentication of Participants. Participants register on a given MOD platform for a specific deliberandum and, potentially, for any subsequent deliberandum within the same community and/or on the same MOD platform. The registration process should indeed start before the launch of this specific deliberandum, though it can then continue almost until the end of its first stage. Participants register under unique pseudonyms; if authentication of contributions is requested, some additional authentication procedures may be performed, such as server-based digital signatures or mobile phone authentication.¹ Every participant is known to the system and to other participants as a “virtual person” identified by his/her pseudonym.²

¹The latter consists in sending a passcode to a mobile phone registered with the user; entering this passcode is requested for validating authenticity of the contribution. Such algorithms may emulate mobile phone-based digital signatures, see <http://www.buergerkarte.at/funktionsweise-handy.html>.

²This will be our main option in the subsequent presentation. Depending on a given context, other options are also possible, e.g. registration of every user in the system under his/her real name, the

2. Selection of an Issue and of Experts in the Field. Every deliberandum is devoted to one specific issue (or a problem, or a subject matter) to be selected in advance. This selection can be done both in a top-down way (e.g. by some authority, or by an NGO, or by any “socially prominent” group of citizens) or in a bottom-up way (by participants themselves). In this chapter, without entering into details, we will simply assume that the issue for the deliberandum is given.

Then, an *expert in the field*, or, better, two or more independent experts, are appointed for the duration of the upcoming deliberation. Those appointed experts will prepare an expert survey (or two or more alternative surveys) in the field of the issue to be discussed. The surveys will be made available for consultation by participants on the deliberandum site. Expert information should present known facts, rather than the expert’s own opinions or proposals. In some way, it should constitute an initial “Wiki” for the given theme or topic or field (and it should preferably be presented in a wikified hypertextual form).

3. Information and Awareness Raising Campaign. At the same time, an *information and awareness raising campaign* is launched in various mass-media, via social networks etc., to attract a maximum number of those who are potentially concerned by or interested in the issue to be discussed, and to achieve *legitimation through full coverage*. The starting date and planned duration of the deliberandum is set and made public.

Common Deliberation (Phase 1)

The first phase of a deliberandum proper is a *common deliberation* within one large undivided body of participants, who advance their proposals and opinions, comment on and evaluate each other’s proposals, and so on. This stage is the hardest to organise procedurally—simply because the system should manage, on behalf and for the best use of the whole community, a very large number of various texts (generically termed “contributions” or “postings”) supplied by the participants, while every individual participant is indeed limited in his/her attention, time, and efforts to spend.

In order for a deliberation to progress in an orderly manner, satisfying as much as possible the criteria set forth in Section “[Requirements on MOD System, Process and Procedures](#)” of Part I, a number of procedural mechanisms should be installed; these are discussed in details in the following subsections.

The interplay between the two activity counters (See Section “[Design Choices](#)”) is straightforward—it corresponds to a simple reciprocity principle: “If you wish your contributions to be read and appraised, then, please, read and appraise others’

(Footnote 2 continued)

system either showing the real name to all other users, or (another option) replacing it with a pseudonym.

contributions”. Performing assigned tasks is also a way to get rid of any external staff or agency, so this principle has a chance to be accepted easily.

Also, applying those self-regulatory procedures from the very beginning of a campaign does not seem absolutely necessary, because the number of participants wouldn’t be too large at the beginning. Up to a few hundred participants, moderation can be done by the campaign staff. There is however a danger of repelling those potential participants who would more readily participate in an “unmanaged” structure or activity than in a “managed” one. Past and today’s experience with various forums, social networks and collaborative development projects like Wikipedia shows a clear inclination of particularly young Internet people toward unmanaged self-regulatory solutions.

Participants’ Contributions, Their Taxonomy, and the Deliberation Graph

After logging in, a participant can submit a new contribution—provided that his/her current reputation (see Section “[Design Choices](#)”) is good enough. The contribution is time-stamped and—depending on the system design—possibly authenticated.

Other participants may send *comments*, which could be:

- *supportive arguments*, or
- *opposing arguments*, or else,
- *amendments* to the proposal,
- or simply, editorial *corrections*.

All items of text that participants enter into the system will be generically called *contributions*. These items may also include:

- *additional information*,
- *questions to the author* of the proposal,
- *requests to experts* for information,

and maybe some other item types to be further defined.

Participants may also raise a *collateral issue*, which should be discussed and solved in order to solve the main issue appropriately. Presumably, a decision of starting such a collateral discussion should be taken after some preliminary deliberation, which may incorporate the experts in the field who are engaged in the main deliberation; this option, however, needs to be further elaborated.

The above set of argumentative elements is a slight extension of a model known as the “Issue-Based Information System”, or IBIS (see Werner and Rittel 1970, and Noble and Rittel 1988). Since the appearance of IBIS half a century ago, other models of argumentative reasoning have been proposed, going into finer details and probably delivering better results (see e.g. Walton et al. 2008). Testing those finer argumentation schemes in a context of large-scale deliberation would be very

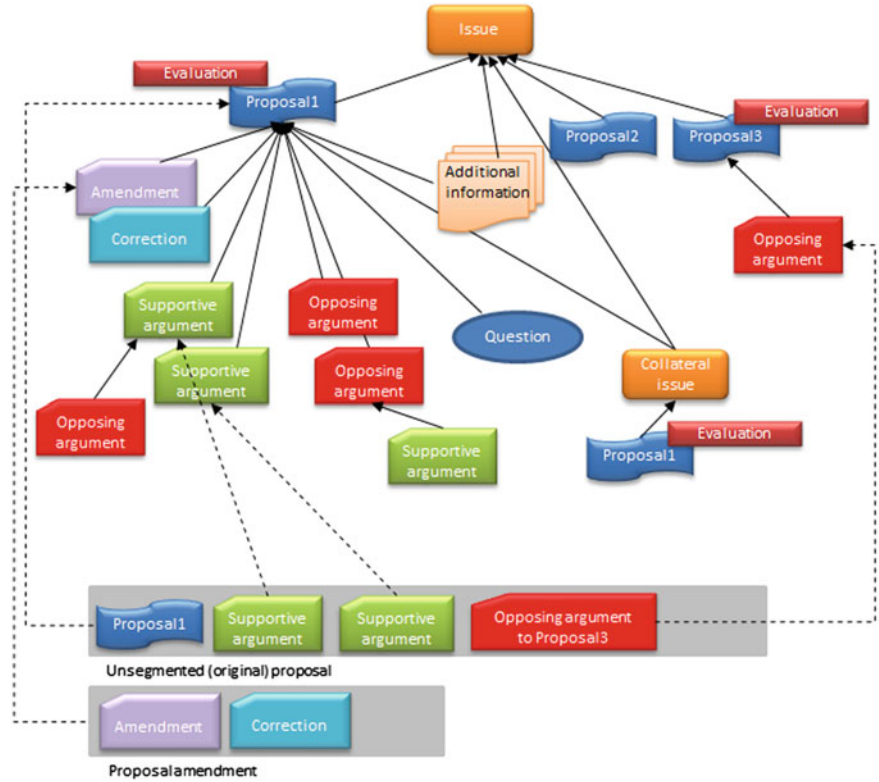


Fig. 2 Deliberation structure

interesting indeed; we should however keep in mind that, when dealing with political participation, we are addressing very large and hence not always well-prepared public. We shall therefore keep our set of argumentative elements small and simple enough, in order for them to be intuitively understood and practically used by an average participant.

When participants upload their contributions (proposals, comments on proposals, comments on comments...), the system inserts them into the *deliberation graph* of the ongoing deliberandum. Figure 2 shows the structure of this deliberation graph.

Revealing Argumentative Structure of Contributions

A contribution uploaded by a participant could be a short proposal or comment of any of the above-listed argumentative types, ready for being added into the deliberation graph at an appropriate place. However, it could also be a longer text,

comprising e.g. a proposal, plus some supportive or explanatory arguments, plus some criticism at other proposals.

In addition to these argumentative elements, the original contribution could also contain several purely rhetorical components, such as exclamations, rhetorical questions to the imaginary reader, and so on. Rhetorical elements play a great persuasive role; so, when we consider a large open deliberation among mostly “average” people, we simply cannot constrain them to use, all the way long, a purely argumentative and structured style of self-expression and persuasion.

On the other side, participants in a large deliberation would not be able to read and “digest” a large amount of such unstructured texts. They clearly need a structured representation, where, in particular, all arguments pro and contra a given proposal are shown next to the proposal itself, or otherwise made directly accessible by reference, in a deliberation graph as the one schematically shown on Fig. 2.

How then we could preserve rhetorical expressiveness of every contribution while revealing its argumentative structure? Only by providing visibility of both the original text and of those fragments of it that contain, or correspond to, argumentative elements of specific (predefined) types. The latter would then be added to the common deliberation graph at appropriate places, while the former could be referenced from every fragment, for easy retrieval and reading (see the two bottom lines on Fig. 2).

Next question—who would extract, or simply delineate, those argumentative fragments in the original text of a new contribution, and would insert them at the right places into the deliberation graph—and how could this be done? Obviously, the author would be the person best positioned to do that, but we should not assume that every participant in a large open deliberation is equally capable of performing such a formal operation, even if his/her original contribution is well-written and appropriately argued. In one of the past-years’ mid-sized deliberative experiments (a few hundred participants) it has been shown (Iandoli et al. 2009) that an average of 1/10 of all participants are capable of performing such an argumentative structuring.

We can indeed provide our participants with an online “contribution editing tool” and/or an “argumentative post-editing tool” that would greatly facilitate the process of preparing a textual contribution and revealing its argumentative structure. Such a tool may e.g. provide the user with a window divided into two panes, where, say, the left pane is reserved for searching specific contributions and then for opening them for reading one at a time, while the right pane is reserved for editing new text or for structuring the existing one. The user can then highlight argumentative elements found in the text being edited, e.g. with different colours corresponding to the element type (proposal, argument pro, and so on); and the system would add those highlighted chunks of text at the appropriate places in the deliberation graph.

Further on, when the user writes, or highlights, say, an argument against some other proposal, he/she retrieves that other proposal to have it shown on the left pane, and draws an arrow from the highlighted text chunk on the right to the appropriate text chunk on the left (within the contribution he/she criticises).

Many participants, however, would still find it difficult to analyse their own writings argumentatively, even when provided with an appropriate tool. This task could then be performed by those from among the 1/10 of participants (see above). This is an additional role for some of our participants (we will call them “coaches”), and not an easy one to play. We should therefore (a) install some valuable incentives for people to take such a role upon them; and (b) have a mechanism for finding out, or selecting, a coach for every “good” contribution that comes in a yet non-structured form. We are not concerned here with fairness of judgement, so we don’t need to select those coaches at random. On the contrary, such an argumentative coach would be even more productive when he/she is linked to the contributor by any kind of personal friendship or ideological closeness. In this way, more or less stable small “cells” of participants will be created, every cell comprising one or more coaches, the role of the latter being to promote others’ contributions in line with their owns. Nevertheless, some incentives could be installed and provided centrally, such as e.g. adding a number of points into the activity counter of every coach for every contribution he/she has worked on.

Yet, there will be many participants who have no such a “friendly coach” to assist them; the system should then request an assistance from any available participant who is apt and ready to serve as a coach. Presumably, this assignment would not (and even should not) be done at random; here the system should use any information it can obtain or deduce on attitudinal or other closeness of the contributor to his/her assigned coach. Incentives granted to the coach will play in this case a yet more important role.

Moderation and Arbitration

Now, let us follow the multistep process of introducing a new contribution into the system. The first step is sending the contribution to a *moderator*, who is a randomly selected participant among those who are currently active and have a positive trust count. The moderator reads the contribution, and either accepts or rejects it; he/she may only do that on the grounds of some strictly defined, formal rules. This may apply to illegal content (e.g., the proposal is racist), voids without real content (“Hello World!”), obvious off-topic stuff, personal insults, advertising and the like. Beyond that, the moderator’s decision does not confer any quality rating on the proposal—it is a purely formal (and in many countries also legal) filter to avoid promulgation of openly unacceptable or meaningless content. The moderation result is communicated to the author. If the author’s current trust is sufficiently high, the whole moderation step may optionally be skipped (i.e. the community may trust this contributor and not check his/her writings—until his/her first wrong).

A negative moderation result can be contested by the author; an online *arbitration procedure* is then launched by the system, by randomly selecting, say, three arbiters among participants with sufficiently high trust counter. Inversely, an unduly accepted contribution may be flagged by one or several participants, who consider it

as severely breaching the formal acceptance rules; an “arbitration court” is then convened by the system on request from those vigilant participants. The court decision costs some number of negative points to be subtracted from the trust counter of the guilty side, and some number of points added to the activity counter of every arbiter; the plaintiff, in contrast, should not be rewarded.

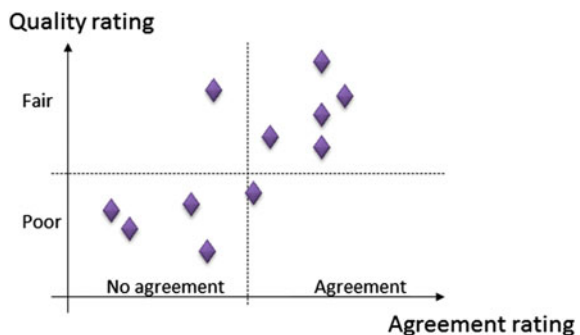
Evaluating of Proposals

In our model, the whole collection of proposals moved by participants should be assorted into semantic clusters according to ideas they express, and ranked within each cluster separately according to how well the idea is expressed. This is clearly not possible to achieve by using just one rating criterion (of a kind “like-dislike”). Therefore, we will ask the initial evaluators of a contribution, and subsequently its other readers, to rate it according to two different criteria: *degree of agreement* (of the reader with the idea expressed in the contribution), and a *quality grade* of the contribution itself. While the former criterion is a purely subjective appreciation of the contribution’s idea (e.g. of what is proposed, or of what is stated about other proposals), the evaluator is assumed to assess the latter one (i.e. the contribution quality) in the most objective and impartial way. Such an ultimate objectivity presumably would be rarely achievable in practice—often a bad quality grade would too heavily correlate with a bad agreement grade (see Fig. 3).

A solution to this problem would be either to consider such paired low grades with a deprecated weight, or else, not to take them into account altogether. In the latter case, it would be a good solution to ask an evaluator first to assign his/her agreement grade to a contribution, and only if it is positive (i.e. the evaluator rather agrees than disagrees with it) to further ask him to assign a quality grade as well. In the following, we will explore the latter solution.

On the other side, not only the quality grade assigned by an evaluator to a contribution will be almost inevitably correlated with the agreement grade assigned by him/her, but the agreement grade, in turn, would be assigned more or less

Fig. 3 Correlation between agreement and quality grades assigned to a proposal by several evaluators



meaningfully depending on how well the evaluator has understood the text of the contribution and the idea that he/she feels to have discovered therein. Sometimes, an evaluator would just barely understand what is written in the text, because of his/her own unpreparedness, or, yet more often, because the text is so poorly written that nobody could be sure of having understood it at all. This is a reason for asking the evaluator first about whether he/she understood the text, and only if he/she replies positively, further asking him/her whether he agrees with it or not.

The above two considerations look incompatible: what should be asked first, a question about the text, or a question about the idea contained therein? There is a solution, however. Let us call *clarity* the characteristic of a contribution to be intelligible, i.e. easily understood. A text could be more or less clear for the majority of readers; but here we are only interested in whether the given reader (the evaluator) *feels* he/she has understood it. So, it's a rather subjective characteristic—a contribution by some Immanuel Kant probably wouldn't be understood by our evaluator at all, and this would not signify that the evaluator is particularly dull, nor that the contribution itself lacks any meaning. Simply, this very evaluator is not a good candidate for answering our further questions about Kant's contribution.

Now we have all elements for building the appropriate evaluation procedure. The evaluator is first asked whether a given contribution (a text of a proposal, or of a comment of any kind) is *clear* for him/her, i.e. whether he/she feels having understood *what the author says or means*. This clarity may be graded, say, from -3 (absolutely obscure) to $+3$ (absolutely clear), or by marking a point on a scale. Only if the evaluator assigns a positive clarity grade, he is further asked whether he agrees or not with the *idea* of a proposal or opinion, expressed by the author in his text. The agreement grade could also be within, say, a range of $[-3, +3]$.

Alternatively, the range of agreement grades that the evaluator is authorised to assign to the contribution, may be made dependent on the clarity grade he/she has assigned to it, in a way that e.g. when the clarity = 1, the agreement can only be within the range $[-1, +1]$ (i.e. the evaluator is not allowed to say "I only vaguely understand what the author wants to say, but I support his idea with enthusiasm"). Similarly, for the clarity = 2 the possible range of agreement grades may expand to $[-2, +2]$; and only when clarity = 3 the agreement range expands to full $[-3, +3]$. This may be graphically shown on an "inverted triangle" (see Speroni di Fenizio and Velikanov 2011) as shown on Fig. 4.

After our evaluator has expressed whether he/she (rather) agrees or (rather) disagrees with the idea of the contribution (in an appropriate range of agreement grades as explained above), he/she may be asked the third and last question, whether this contribution is of rather high or of rather poor *quality* (again, we suppose the range of quality grades to be $[-3, +3]$). This quality characteristic is meant to be *objective*, as opposed to the somehow subjective clarity assessment in response to the first question; and it encompasses many other aspects in addition to simply being clearly understood: argumentative strength, eloquence, etc. Here the evaluator is asked, in fact, whether he/she would *recommend to other readers* this very text as an adequate and persuasive presentation of a given idea.

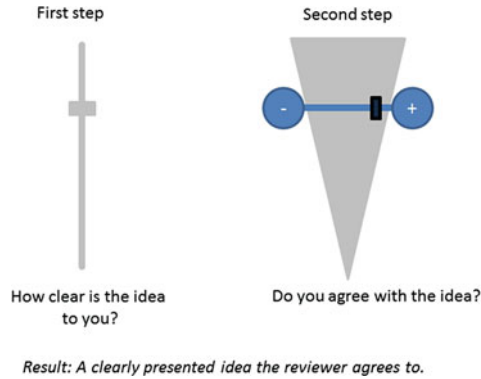


Fig. 4 Agreement and understanding rating

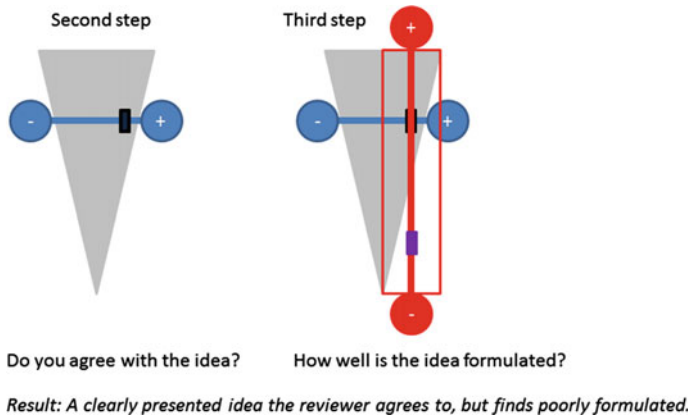


Fig. 5 Agreement and understanding rating (cont.)

Obviously, such a question should not be asked to a person who disagrees with the idea; for there is a danger that such a person would negatively rate the quality of a good text with an idea he/she disagrees with, or else, following some nasty strategy, he may even rate high a poor expression of such an idea, trying to create confusion among those readers, his ideological opponents, who support the idea.

For these reasons, we consider it simply non-productive to request a quality assessment of a contribution from those who disagree with it. It will therefore be reserved to those who agree at least to some degree.

This whole process of asking an evaluator three questions in sequence—about the clarity (for him/her of a given text), then about the agreement (of him/her with the idea of the text), and finally about the quality (of the text, as recommendation for others to read it), can be implemented in the user interface either as a classical three-step list of alternatives with checkboxes, or in a more advanced graphical way, as shown in Figs. 4 and 5.

The above three ratings of a contribution are to be recorded with it as its metadata, to be further exploited by the system, as will be described in the following subsections.

Ensuring Fairness in the Rating Process

One of the most important requirements to a mass online deliberation is to prevent the formation of cliques supporting each other's ideas, denigrating deviant ideas and suppressing possible minority voices. Furthermore, in classical online forums, and depending on their design, privileged position is reserved to either the early submissions (because they have already collected a number of "likes") or, on the contrary, to the late submissions (when they are shown in the inverse chronological order). However, a proposal should be promoted, considered and appreciated depending solely on its intrinsic qualities—this is indeed a goal we should approach as closely as we can. Hereafter we give some details of our proposal rating procedure, aimed to achieve this goal.

Of the three above-specified parameters, the most vulnerable to the clique actions is the quality rating, because an author can organise, say, his friends on Facebook to massively rate his contribution as being of excellent quality, thus unduly promoting it to the highest level of visibility. For this reason, in our system the aggregate quality grade of a contribution is defined as an average of the quality grades individually assigned to it by a small number of *randomly selected* participants, in what we call an *initial* evaluation of a contribution.³ A short number of such randomly selected evaluators (say, starting from just three) is solicited by the system to rate a new contribution, which is submitted to them in anonymized form. The system sends these requests, or invitations, to those participants who are currently online, and who have their trust counter high enough. If some of them do not accept the invitation, the system invites alternative candidates.

If some of the initial evaluators consider the contribution obscure (clarity <0), then the system again solicits alternative candidates, and in some cases may even

³The idea of applying the *blind peer review* method to participants' contributions in a democratic online deliberation seems to have been first proposed by Stodolsky (2002).

collect a larger number of quality grades—we will not enter into details of this iterative process. At the end of this initial evaluation of a contribution, its average quality grade is calculated, and the contribution is de-anonymized and made visible to everybody.

In the subsequent process of reading and commenting on the contribution, it may be rated by any participant in the same way as during its initial evaluation; however, quality grades thus obtained are not considered by the system at all—or, alternatively, may be counted with a deprecating coefficient.

As per the agreement grades obtained in the initial evaluation and then in the subsequent unsolicited reading and evaluation process, we consider that both can be considered with an equal attention. This is simply because even the agreement grades assigned by the author's *claque*, if any, could individually be considered as useful for our clustering process (see hereafter). On the other hand, we do not intend to show the total number of agreements to every participant, neither to promote the “most supported” proposals; in this way, such a “*claque rating*” will not influence other participants' judgements, and minority voices will be given the proper visibility.

Finally, the clarity rates seem useful only for signaling them to the contribution's author, in order to prompt him/her about the need of making his/her text more readily understandable. In contrast, there is no need to show clarity grades to other participants.

Clustering of Proposals

When deliberating over an issue, several participants may wish to formulate their proposals on how to solve the issue. Some of those “initial proposals” may represent the same ideas, just set out in different words; other ones may be somehow different though closely related to one another; yet others may be opposite or incompatible. In a populous online deliberation, a very large number of such individual initial proposals may be posted, making it virtually impossible for an average participant to read and compare them all. This in turn would provoke an even larger number of participants to formulate their own proposals rather than to express their support to, or to comment on, proposals already posted by their peers. Hence the need to provide the deliberating community with a “bird's eye view” on the whole spectrum of proposals already posted, somehow classified and grouped for better reading and understanding. We call this process *clustering*; in our model, it should be primarily applied to proposals, but may also deal with comments (on a given proposal) when they are numerous.

In our proposed system, the clustering process is performed in the background in real time, when the deliberation process is still running, so that its output is permanently (or at least regularly) updated. The clustering algorithm identifies the proximity, or *similarity*, of proposals (some of which may even be virtually identical) and creates clusters of proposals. Similarity of any two proposals may be

solely deduced from the topology, or the distance metrics, of agreement links (see below). Additionally, the algorithm may take into account the results of explicit pairwise comparisons made by some of the participants in response to specific system requests.

Using explicit comparison data would indeed deliver much more precise results; but, at the same time, it would require much more efforts from the participants. Hence, we should design our clustering algorithm in such a way as to do the maximum with the available agreement data; then, when necessary, select some of the participants to provide additional agreement grades to selected proposals; and only when really needed, ask them to explicitly compare two (or more) proposals.

The proposal quality grades are used in two ways. First, proposals within every cluster are quality-ranked, in a way as to determine one or more “lead proposals” of this cluster—those which, presumably, better express the “idea of the cluster” will be proposed to participants as “the first reading” on the idea. Second, quality grades are used by the clustering algorithm itself, for the sake of minimizing the total number of comparison requests to participants and thus sparing their efforts. Namely, every new proposal is first compared to the lead proposals of the existing clusters; comparison process then continues top-down following the quality ranking of the presumably most appropriate cluster(s) until a convincing result is obtained. Otherwise, the new proposal starts its own new cluster.

In the course of each background cluster calculation, some of the clusters may be merged and/or split; generally, the cluster membership of a proposal may change over time. The system may erroneously place a proposal in a cluster; participants would have a possibility to flag such cases, and the system then solicits, say, three authors of proposals in this and in other clusters to decide upon the case (similar to arbitration of moderation decisions considered in Section “[Moderation and Arbitration](#)”).

Figure 6 shows an example of this *agreement-based clustering of proposals* (or, in more general settings, of *opinions*). Participants A, B and C have indicated their

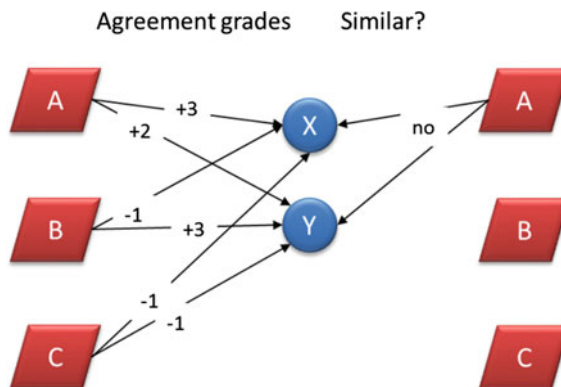


Fig. 6 Agreement-based clustering of proposals

agreement with proposals X and Y ranging from -3 as “totally disagree” to $+3$ “full agreement”. According to participant A, these two proposals must be along the same lines, as she rates both of them well. The distance in agreement between X and Y by A is therefore $|X - Y|_A = 1$. On the other hand, C is consistent in rejecting both proposals, while B is rather satisfied with Y and rejects X . Note that this data come from “unitary” agreement assessments by participants, in the absence of any explicit pairwise comparison of X and Y . How we can use this data?

The first idea would be to define a pair-wise distance for proposals X and Y as an averaged sum of agreement distances over all participants a :

$$AVGD_{(X,Y)} = \frac{\sum_a |X - Y|_a}{n(a)}$$

The so-defined distances can then be used by our clustering algorithm to create clusters of proposals according to any known mathematical clustering method.

The above idea, however, needs a couple of important corrections. First, we shall notice that those participants, as C in our example, who disagree with both X and Y , bring in fact no information on whether X and Y belong to the same or to different clusters—both cases are for them equal. Hence, their individual agreement distances, such as $|X - Y|_C$ in our example, should be dropped from the above averaged sum.

As per the $<+, ->$ agreement pairs, such as the agreement with Y and disagreement with X by B in our example, these would indeed influence the averaged sum much more than any $<+, +>$ pair; so, in our example, $|X - Y|_A = 1$, but $|X - Y|_B = 4$, and the averaged sum is 2.5, which is rather high, and would cause placing X and Y in two different clusters. This should not be considered as anomaly, but needs additional consideration, by trying to understand the meaning of every combination of agreement signs. Hereafter, for the sake of simplicity, we make abstraction of absolute values of every (dis)agreement grade, reducing the value scale to $[-1, +1]$.

Namely, if, for a given proposal pair $<X, Y>$ one or more participants agree with X and disagree with Y , and at the same time some other participant(s) do the opposite, then we can deduce almost for sure that X and Y are in disjoint clusters—they are considered by all those participants as rather different proposals, maybe incompatible or even opposite one to another. If, nevertheless, some other participant(s) agree with both X and Y , this should signify that proposals X and Y , presumably, are not of opposite nature, they simply express different ideas that are both perceived as acceptable by those $<+X, +Y>$ participants. If those $<+, +>$ participants outnumber the $<+, ->$ and $<- , +>$ altogether, then our averaged sum of distances may fall below some threshold, forcing the clustering algorithm to place both X and Y into the same cluster, which would be a wrong decision. Hence, we should probably take the $<+, ->$ and $<- , +>$ components with a higher weight in the averaged sum, than the $<+, +>$ components.

Another interesting case will appear when, for a given proposal pair $<X, Y>$, there are some $<+X, +Y>$ and some $<+X, -Y>$ people, but no $<-X, +Y>$. This can be interpreted as the proposal Y being in some way *dependent* on the proposal X ; either Y is “stronger” than X , or it is “weaker”, or else, it is kind of “add-on” to X ,

etc. These are the cases when a participant may consider that “*X* is a great proposal, but *Y*, though basically the same as *X*, is requesting too much”, or, on the contrary, “...is really insufficient”. In all such cases, there is a good reason to place *X* and *Y* into the same cluster, while probably putting *Y* into a specific “sub-cluster”, maybe together with a few other proposals similar to *Y*. This would bring some hierarchical structure in our clustering scheme; the whole idea, however, needs further consideration.

System-Generated Requests for Evaluation or Comparison of Proposals

Till now, we were considering a “non-interactive” version of our algorithm, working only on the “already available” agreement data. These, however, may often appear insufficient. First, there may be proposals, esp. new ones, or those that happened to receive a low quality grade, which have not been read and rated by many users; hence, our algorithm would not find a sufficient number of agreement pairs for deciding on their appropriate placement into a cluster. These “weekly connected nodes” in our “deliberation graph” would be, however, easily detected by our algorithm, and the system would then request from “key participants” to look at such a neglected proposal, say *Z*, and express their (dis)agreement. Namely, every participant who has already rated a lead proposal *T* of some cluster, but not yet *Z*, is a natural candidate for receiving such a request as a “key participant”. In this way, the overall deliberation graph would become denser around *Z*, allowing to place *Z* in an appropriate cluster (Speroni di Fenizio and Velikanov 2011).

Another kind of system requests to “key participants” is a request for *explicit comparison* of a given pair of proposals $\langle X, Y \rangle$. In view of our above considerations on different cases of inter-cluster dependencies, such a request may propose to select among, say, for alternatives: *X* and *Y* express different ideas, *X* and *Y* are similar, *X* is more general than *Y*, *Y* is more general than *X*. Here, “*X* is more general than *Y*” may have any meaning, simply attesting that “more people are supposed to agree with *X*, than with *Y*”. Explicit comparison requests are indeed susceptible to bring more valuable and precise information than single proposal rating requests; however, at the same time they are much more time- and effort-demanding, and therefore can only be addressed to well-prepared and sufficiently involved participants.

By the way, any author of a new proposal *Z* could indeed be considered as a natural candidate for receiving both types of requests concerning *Z*—maybe as a list of questions at the submission time. However, there is a danger that the authors would try too often to characterise their child as absolutely unique, to be placed in a new cluster; therefore, this data from authors, if any, should be considered with caution.

The current state of the clustered deliberation graph can be presented to participants in a list form, using e.g. indentation and other textual features; or, a more

or less elaborated graphical view can be generated, with, say, “hills” for clusters, with lead proposals as hilltops. When a participant wants to read the “most interesting” contributions (or “the most representative” ones), the system will suggest him/her to read just a few highest ranked proposals (or only the lead proposal) within each cluster, including the smallest clusters. In this way, the participants can easily become acquainted with the whole spectrum of the currently expressed ideas, contemplating them from the “bird eye’s view”.

When the deliberation ends, the outcome of Phase 1 should be a number of clusters, each comprising identical, similar, or closely related proposals, which are then to be consolidated, during the Phase 2, into one proposal per cluster.

Our method, in particular, *gives voice to minorities*, whose opinions are not supported by many. These opinions will remain visible in a form of distinct clusters, though of lesser width and probably also of lesser height.

Per-Cluster Consolidation of Proposals (Phase 2)

In the *second phase*, aggregation of ideas/proposals is performed within each cluster separately, by a small group of *editors* of that cluster, with the aim of editing one well-formulated and well-argued proposal around the main “idea” of the cluster. The results of this stage would be, ideally, one edited proposal per every cluster. The aim is to achieve more clarity, unity, and argumentative support in a presentation of the cluster’s main idea.

Collaborative editing cannot succeed if there are too many editors; and it becomes simply impossible when those “editors” promote opposing, contradictory ideas (“edit wars” in Wikipedia give only a weak example, because when discussing a policy issue opinions are intrinsically much more contradictory and distant from each other than when discussing factual information). Hopefully, in our case there will be distinct groups of editors, each one working on one given cluster, formed around one proposal idea.

There are at least three questions concerning the overall organisation of this editing work, and for each one there are a few options to select from, or to combine them when possible:

- (1) How should the editing group of a cluster be formed? Should it comprise only (some of) the originators of the proposals in the cluster? Or, possibly, also other participants from the “support group” of the cluster? Who makes a final selection, if there are too many candidates? Should it incorporate also (some of) the experts?

The following solution seems to be reasonable and well balanced. The system sends invitations to join the editing team for those among the originators of the proposals in the cluster, who have some reputation of being good writers, i.e. their proposals received a high quality rating. Some of them may decline. If nevertheless

there are too many candidates, their candidatures are put on vote among the participants belonging to the cluster's support group.

The editing group, once formed, elects their "chief editor" and invites experts at their discretion, to assist them in preparing the cluster proposal.

- (2) How should the editing work progress? In a "closed room", or transparently? Are the participants allowed to comment on the work in progress, on drafts etc.? For, too much "freedom" would impede the editors' productivity.

The following solution appears workable and justifiable. The whole editing process, or at least some sequence of its intermediate results, is open to public reading. Participants belonging to the cluster support group are allowed to comment; "outer" participants have no such permission—this is not "their" proposal. Editors are supposed to read those comments, and they may reply, but this is never mandatory—for otherwise this may disturb their editing work too much. Comments on comments are not allowed at this stage.

Furthermore, as in a large cluster there may be too many comments even for editors to read them all, it would be beneficial to allow participants to assign agreement grades to those comments, as they did it in Phase 1, so that the editors may read first the most supported comments. Another option is to reapply the whole clustering mechanism to comments in every specific cluster, to create clusters of comments (related to the draft being edited).

- (3) What if there are "dissidents" among the originators of well ranked and largely supported proposals within the cluster—those who do not agree with the editing group's decisions, whether they are members of the editing group or not?

We suggest that "dissidents" can form their own "private" group that works in parallel of the "official" one. The method of work is the same in both cases. If at the end there are more than one proposals aimed at representing the whole cluster, then the winning proposal is chosen by vote, in which, indeed, only those participants who belong to the cluster support group are allowed to take part. Optionally, the vote is restricted to proposal originators, or to any supportive contribution originators, or like.

Note that here, as well as at many other steps of our deliberation procedure, the option of weighted vote could be considered (see the last subsection), where every vote cast by a participant is considered with a weight that is automatically calculated by the system from a certain combination of the participant's various ratings.

The outcome of Phase 2 is thus one consolidated proposal per cluster.

Inter-cluster Reconciliation of Proposals (Phase 3)

Depending on the number of original contributions and on their proximity, Phase 2 may yield dozens of cluster proposals which may nevertheless be very similar, or compatible, or complementary. These proposals may hence be merged and

consolidated even further to produce a comparatively small—and clearly distinguishable—number of proposals, which will then, in the final stage, be voted on. Consider Fig. 7 showing the remaining clusters (A through F) after Phase 2. Each of these clusters is represented by a consolidated proposal as described in the previous Section. Assume that there is a suggestion to merge clusters A and C, another suggestion to merge D and E, and yet other competing suggestion to merge four clusters: C, D, E, F. Suppose every merger is performed as suggested.

In a second iteration, a further merger between consolidated proposal AC and B is suggested. Proposal DE is encompassed by CDEF and is deleted.

The following questions arise which need to be addressed in a MOD process design:

- (a) Who may in general propose a cluster merger? Several options are conceivable:
 - a. Any of the originators (i.e. authors of proposals) of a cluster (possibly restricted to those taking part in the editing process);
 - b. Any of the authors of comments to a proposal in a cluster (essentially this amounts to the same question as to the editing rights in Phase 2, see above).
- (b) Who is granted the right to start editing a combined proposal of the merged clusters? We would suggest limiting this right to originators of any of the proposals in any of the clusters to be merged. For example (see Fig. 7), two originators in cluster C, one originator in E and one in F may advocate the merger of clusters D–F.
- (c) Can a cluster be included in the merger, even if no originator in said cluster advocates the merger? In our example, this would be the case in D.
- (d) Is it possible to include a cluster in several proposed mergers? This would be the case of cluster C in our example on Fig. 7.
- (e) When the combined proposal of the cluster has been prepared, who is eligible to vote on the new consolidated and “reconciliated” proposal? The same options exist as in Item (a)
- (f) If a cluster is encompassed by another cluster (see DE and CDEF), who decides that the smaller proposal is to be dropped?

This reconciliation procedure may have several iterations, until finally a small and manageable number of clusters and respective proposals are left. This leads to the final cluster selection stage.

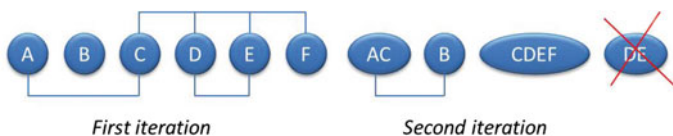


Fig. 7 Clusters after phase 2

Selection Among Irreconcilable Proposals (Phase 4)

Voting

After aggregation of the various ideas to a relatively small number of conflicting proposals (if not to a full consensus), at some moment it will appear that no further merger of proposals is possible. Then the final phase in the deliberation process is reached: the voting decision on the remaining—and presumably conflicting—proposals. For that purpose, an eVoting system has to be used that works with the identification base of the deliberation system, enables strong protection of voting secrecy and provides for auditable and reproducible results, such as an independent recount. Here, the relevant provisions of Council of Europe Recommendation 2004 (11) on eVoting (or its upcoming successor) should be the yardstick. Otherwise, the trust and credibility that has grown in course of the deliberation could well be lost in a poorly implemented voting phase.

In some contexts, the vote may cover the whole community, rather than its deliberating part, and take a form of a *referendum*. In yet other contexts, a list of alternatives produced at the end of the 2nd or 3rd phase will be simply forwarded to an external decision-making body, such as a parliament or a ministry or a municipal council.

Note: These are different *scenarios of use* of our collaborative MOD model; which one will eventually be applied for every specific deliberandum depends on specific legal provisions and/or on a given community or organisation.

Voting Weights

Voting may follow the general principle of “one person one vote”; alternatively, each participant may be assigned a *voting weight*, which can be used as a multiplying factor, when considering all appraisal/voting actions performed by that participant (or only actions of a specific type). The weight should be a limited monotone function of the participant’s appropriate rating, with the lower bound at 1, and the upper bound selected as system parameter.

The upper bound may itself be defined as a function, say, of the current total volume of the deliberation (i.e. the total of all the appraisal grades assigned by all participants to all contributions); in this way, at the beginning of a deliberation this upper bound will be relatively low, and will then grow up to some absolute maximum, e.g. up to 30 in a very intensive deliberation with many participants.

This weighted vote principle is an option; the system does not depend on whether it is applied or not. The idea behind it is to make the deliberative community more immune to “mob attacks” (concerted disruptive actions) while still preserving its immunity to “oligarchic ruling”. The middle way between these two

dangers may be found by carefully selecting numeric parameters in weights calculation formula.

Indeed, weighted voting introduces a kind of *hierarchy*, or better, *inequality* among participants; though this hierarchy is created *dynamically* and *reversibly* and maintained by participants themselves, solely on the basis of each participant's deliberative actions. In (Velikanov 2010d) an extensive argumentation has been developed in favour of weighted voting as a fair and democratic device.

We should also note, for further consideration, that in some settings, such a weighted vote can be considered as *indirect delegation* by participants of some part of their voting capacity to those other participants whose proposals (or other actions) they have supported or agreed with.

Multilingual Deliberation

In many cases, deliberation will have several streams running in different languages. We should however avoid a situation, where discussion runs in two or several language streams that do not interact with each other—because there needs to be a free flow of ideas and proposals, rather than blind confrontation, between the language streams. A mass-deliberation system has to provide for that. Hereafter we briefly describe how our MOD concept can be enhanced to accommodate such a multi-lingual deliberation, by using “crowd-sourced translation”, whereby requests for translation are fairly distributed by the system among bilingual participants. (For a more detailed discussion, see Velikanov 2010c).

To make it happen, our method proposes to *submit for translation*, first of all, the *best and most representative* contributions from their native language into other participating languages (or at least into one common language, in a simplest form of the system).

Those “best and most representative contributions” are selected by the system in the same way as described in Section “[Common Deliberation \(Phase 1\)](#)” (the highest ranked ones in every cluster). To get those contributions translated, the following procedure will be run by the system:

For every such selected contribution, the procedure starts with an open call to the whole deliberating community, to find out one or more *volunteers* having appropriate linguistic skills. Note that, for a smooth performance of the translation procedure, participants should declare their linguistic skills (from which into which language they could translate) preferably at the registration time, to be recorded with their other registration data.

If there are several volunteers, preference may be given e.g. to one whose translations have received the highest quality grade in the past (see below); or, alternatively, by random selection. If however nobody has volunteered to translate a given contribution into a given target language, then this translation is *randomly assigned* by the system to a currently available participant with appropriate linguistic skills. If that person declines the assignment, the system indeed tries to find another candidate, as in other situations described in previous sections.

For a rare language combination (e.g. from Greek to Finnish), when neither volunteering nor randomly selected “direct” translators can be found, the system schedules a further translation of the contribution from English into that target language (Finnish) after its English translation (from Greek) becomes available.

Translation by *staff translators*, if any, is considered as the last resort—to limit the resources necessary to run the system.

Optionally, the result of a translation is first submitted for *quality check* to one or more other appropriately bilingual participants, similar to the initial evaluation mechanism described in Section “[Evaluating of Proposals](#)”. If the quality of the translation is found to be too poor, it may be reassigned to another bilingual candidate, for re-translation or correction.

The translated contribution is then made available for its further reading and for collecting *agreement grades* within every target language deliberation stream, in line with the native contributions of that target stream. In contrast, it is not clear whether every translated contribution should pass a new *initial evaluation* and be reassigned a new *quality grade* within any target stream—considering that its original evaluators should have made a better judgement on its quality than may have evaluators of the translated version.

Participants may indeed submit new contributions *commenting* on those translated foreign ones. At some later stage, another combining phase may become necessary, in order to translate the “best and most representative” comments from within every stream and make them available to other streams.

In this way, deliberation may continue within every linguistic/national stream using the native language of the stream, while being regularly “connected” to all other streams and receive the best contributions from those other streams. At the same time, our method avoids wasting resources on translating a large number of low-quality contributions.

Conclusions

In Part II, we have provided an outlook of a MOD system—how it would appear and how it would behave. Yet more important, we have drawn the major patterns of participants’ interactions in a deliberation, both between them (implicitly, via their contributions) and with the system, the latter representing the whole community and acting on behalf of the whole community. Our mechanism of mutual moderation and appraisal (aka evaluation), already partially tested in the Finnish project discussed in Part I, would create a self-managed deliberation space, with only a few top-level arbiters for resolving the most violent of procedural disputes. The clustering algorithm will sort participants’ contributions into semantic clusters, according to the topology of their appraisal links, and a clustered “bird’s eye view” onto the whole sea of participants’ contributions would make it easy for any participant to navigate across it.

Many options have been briefly sketched, but left for further study; other options haven't even been mentioned, and yet other may surge and appear to be useful during the first pilots with the system. Hence, our presentation is by no means definite, and may give rise to several more specialised implementations, each one tuned for a given type of application comprising mass online deliberation as a useful or even necessary component.

Among these application types we anticipate, along with the participatory law- and policy-making, the participatory agenda-setting, the participatory budgeting, various methods of public consultation esp. about local or regional infrastructure projects, etc. Some of these application types would need additional functionalities to implement, without, however, putting into question the main MOD concept described in this chapter.

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Converting the Outcomes of Citizens' Discourses in the Cyberspace into Policy Inputs for More Democratic and Effective Government

Yuri Misnikov, Olga Filatova and Andrei Chugunov

Abstract Using a real-life and imagined case studies, we demonstrate how a casual, informal political conversation on social media among ordinary citizens could be transformed into a policy discourse. It is done by deconstructing the logic of discursive interactivity of online discussions. In doing so, we apply Jurgen Habermas' validity claims to normative rightness to reveal citizens' attitudinal positions 'For' and 'Against' certain social effects of food destruction policy of the Russian government. We measure citizens' attitudes in the form of the discursively constructed solidarities behind each position and show the interactive process of their formation. We also build a range of interactivity models that could exploit the potential of artificial neural networks for creating new tools of discourse analytics that can capture citizens' policy inputs in an easily understood format. The goal of such tools is seen in helping reduce deliberative disagreements by encouraging acceptance of other points of view—the core principle and ideal of deliberative democracy.

Introduction

As numerous e-participation platforms and initiatives have yet to become a genuine space of citizen's meaningful input to public policy, the informal political talk among ordinary, non-organized citizens in cyberspace as a source of their collective

Y. Misnikov (✉) · A. Chugunov
ITMO University, St. Petersburg, Russia
e-mail: yuri.misnikov@gmail.com

A. Chugunov
e-mail: chugunov@egov-center.ru

O. Filatova
St. Petersburg State University, St. Petersburg, Russia
e-mail: filatovo@gmail.com

intelligence remains untapped as well. They often prefer discussing public affairs among themselves ‘from below’—e.g., on social media, specialized discussion forums or newspapers’ Web sites—rather than contributing to policy consultation on official e-participation platforms launched ‘from above’ (Coleman and Blumler 2009). This disconnect, in our view, exacerbates the already declining trust in official politics ‘from above.’ Perhaps, this trend is best manifested by the ‘unexpected’ results of the UK’s Brexit referendum, as well as of the electoral campaigns in the USA and some other European countries in 2016. It is believed that social media marketing reached out to non-voters outside the mainstream politics and mobilized to articulate their differing political positions by voting against the ‘business as usual.’ It is also thought that much of these positions are nurtured via online discourses in disparate discussion threads which often further fragment and polarize the public; or at least mirror the existing levels of polarization. All that prompts asking: What do we know about the very processes of public—and especially non-public—opinion formation on and via online discourses? Could the knowledge of such processes help develop approaches making online discourses reduce differences instead of enlarging them?

We wrote this chapter being motivated by the goal outlined by Noveck (2016) to explore new ways of distilling the outcomes of citizens’ collective intelligence of the casual public debates online and turning them into legitimate inputs to formal policy-making. Our special attention was paid to investigating the relevance and applicability of one of the main principles of deliberative democracy generally and online deliberation in particular to reduce disagreements by encouraging acceptance of—not necessarily agreement with—the other’s point of view.

In this light, we’ve thought that the concept of digital interactivity—a cornerstone of social networking—could be revisited given the dominance of social media nowadays and thus to better assess its potential for strengthening democracy through deliberation. While this is hardly a novel topic in the theory of civic and political communications, we believe that the pragmatic side of turning citizens’ conversations in the cyberspace into policy discourses has not been sufficiently explored methodologically. Many sense-making techniques explore typically the relational side of social networking, i.e., viewing interactivity as a map of who connects to whom and on what (political or other) grounds. The sense of the latter is gathered from the posted messages by using numerous text-crawling, topic-mapping, argument- and data mining tools.

However, the deliberative essence of political conversation online is either missed or misplaced by such tools, for example, fundamental for deliberation theory and practice ‘principle of the economy of moral disagreement’ (Gutmann and Thompson 2004), concerned with the reduction of deliberative disagreement in a dialogic manner, remains largely unaddressed. In addition to rethinking interactivity in deliberative terms, we are also interested in investigating how the complex and lengthy chains of reciprocal communications could be better and faster processed to decipher their political meaning. Therefore, we have attempted to

deconstruct the political talk online with the aim to discern its deliberative characteristics that would be suitable for further processing and computing with the help of artificial intelligence (AI) means, for example, neural networks—a fast-developing domain of AI domain.

We consider the radically increased computing power of deep machine learning has a potential to expand the scale and scope of discourse analysis applied to the social media world, the main venue of endless political conversation given that their coding is a highly effort- and time-consuming procedure. The intention is not only to make sense of what is posted but also to contextualize it in terms of the collective process of will formation and solidarity building among discussants when reciprocally agreeing or disagreeing. To demonstrate our findings, we present a case study that deconstructs the actual real-life discourse to its main elements and processes for further possible processing by machine learning algorithms. In doing so, we do not intend to answer all the question that might be raised in this regard. Nor do we offer ready solutions how to facilitate discourse analysis with the help of AI tools viewing this as a stand-alone extremely complex and multifaceted task.

Our main pragmatic purpose goal, when writing this chapter, was to collect evidence on how an informal political talk on social media could be deconstructed into an online policy discourse using the Habermasian claims to validity. For that, we manually coded the content of posted messages to disclose their underlying meaning (claims, statements, and positions) and identify the discursively built solidarities among the message authors that articulate their aggregated attitude toward the issues raised during the debate. We choose to present such attitudes in the form 'For' and 'Against' positions that either approve or disprove certain kind of policies including related activities and actors involved.

In reporting on this ongoing research, we would like to clarify it was not a typical empirical study aimed at testing hypotheses, answering related research questions and explaining the obtained results. What we wished to do was to understand how discursive interactivity might look like when stripped from excessive information that usually accompany exchanging messages on social media and how participants become part of issue-based solidarities after posting their messages. We thought that knowing the logic of discursive deconstruction could help in imagining online discourses as interactive neural networks. We did not try using any neural network with the help of machine learning tools as we did not—and still do not—know how to train them. But we thought that likening online discourse networks with neural networks through the common logic of interactivity would help us comprehend clearer the ways of predicting the meaning of the posted messages (semi)automatically. Thus, we approach this problem not as AI specialists but as political communications scientists and sociologists. Therefore, many questions arising in respect of whether or not the computational potential of neural networks could be realistically applied to accommodate our findings we leave unanswered.

Policy Discourses: Theory and Reality

Discourse as Democracy

Online debates among ordinary citizens realized with the help of computer-mediated communications (CMC)¹ isn't a novel domain of academic scholarship. Its history goes back to at least the 1990s when, in the absence of the Web-based Internet, as we know it today, the dominant at the time e-mail communication channel was already enabling 'access to electronic discussion groups' (Hague and Loader 1999: 3). The USENET newsgroups, for example, as well as other e-mail-based Listservs are the case in point (see, e.g., Hill and Hughes 1997; Rheingold 2000). Such studies were essential to support the emerging field of electronic democracy, especially to revisit the traditional theory of democratic citizenship and political participation.

e-Democracy was—and still is—seen, despite certain skepticism regarding the unfulfilled democratization potential, as an openly pro-citizen concept aiming to make the institution of democratic representation more participatory. It is best manifested, perhaps, by the term 'collective intelligence' (Malone and Klein 2007) that includes similar concepts of civic intelligence and collective action. Both advocate the collective side of civic activism directed at solving problems democratically for the common good. While the notion of civic intelligence places a greater emphasis on people's capabilities to solve 'problems effectively and equitably' (Schuler 2001: 114, 2013, 2014, 2016), the paradigm of collective action seeks to prioritize 'community problems' (Briggs 2008: 6). Briggs (2008) warns in this light that democracy depends on the collective efficacy of problem-solving.

In a deliberative democracy's tradition, Jurgen Habermas believed that it could be done through a 'linguistically mediated, intersubjective process' of truth-tracking to discover important topics, question and reinterpret norms and values, contribute to the resolution of problems, coordinate their interaction (Cohen and Arato 1997: 435; Habermas 1992: 452). For him, only moral discourses would strengthen the democratic legitimacy of policy decisions.

Discourse as Deliberation

Deliberative democracy as a form of government draws on the collective will and judgment of free and equal citizens (Gutmann and Thompson 2004). It offers to realize collective efficacy by engaging citizens in public discourse to approve or reject public policy (not simply by voting). It is a democratically legitimate way of decision-making and problem-solving that relies on the citizen's civic duty to 'justify

¹There is also a similarly understood term Computer-mediated conversation (CMC)—see Herring (2011).

decisions' in public debate by giving 'one another reasons that are mutually acceptable... with the aim of reaching conclusions that are binding in the present on all citizens but open to challenges in the future' (Gutmann and Thompson 2004: 7, 9). Central to deliberative discourse is the discussants' readiness to accept others' views, not necessarily to agree with them, and thus reduce deliberative disagreements.

The adaptation of deliberative democracy principles to the cyberspace—facilitated by the exploitation of CMC benefits—has led to the emergence of a relatively new domain of online deliberation.² Its main objective is the development of e-participation tools to support deliberative practices online. Yet despite many e-participation tools created and initiatives implemented (see, e.g., Leitner 2007; Panopoulou et al. 2009; Chrissafis and Rohen 2010; Koussouris et al. 2011), the use of online deliberation has not been institutionalized in public administration practice (Coleman 2012). Gibson et al. (2004: 1) concluded that 'innovations at the macro- and, particularly, meso-levels' have not been sufficiently demonstrated.

The sustained success of many e-participation initiatives does not seem to be solely a result of the disconnection between the informal civic (citizenry) and the formal official (government) given the very different ways civil society and authorities operate (Kriplean 2009). It may also be a problematic design of online deliberation procedures within the e-participation tools themselves (Sack 2000; Tolmie et al. 2014; Borning et al. 2005). A poorly implemented design of the user interface, for example, may significantly hinder the course and result of online deliberation. The prevailing approach toward e-participation design has been focused so far on the creation of deliberation platforms and 'spaces' where members of the public can deliberate on policies and other salient societal issues.³

The Problem of Institutionalizing Policy Discourses

However, by and large, online discourses have not been successful in making policy deliberation more democratic and hence legitimate due to the inability of the institutional bureaucracy of the state to benefit from the opportunities offered by digital networking (Coleman 2012). There is still little clarity, despite vast experimentation, about how to institutionalize citizens' participation in public debates in the cyberspace. This space remains empty, and there is a risk that the opportunity to fill it 'will be squandered without imaginative policy intervention designed to shape and nurture democratic opportunities provided by the Internet' (Coleman and Blumler 2009: 7–10).

²It is worthwhile noting that the first international conference on online deliberation was organized relatively recently in 2003. <http://web.archive.org/web/20060314061609/http://caae.phil.cmu.edu/style/Seminar.html>.

³Such as, among numerous examples, the IDEA platform debate education <http://idebate.org/> or more commercially oriented Citizen Space <http://www.citizenspace.com/info> on the *Delib* platform <http://www.delib.net/> in the UK and Disqus <https://disqus.com/>.

Numerous attempts to create simple and reliable discourse analysis tools as well as entire systems for decision makers and citizens alike to produce discourse outcomes have not succeeded to win their target audiences due to low adoption levels. Decision typically makers don't use (or are not encouraged to use) the independent social networking sites to engage with citizens in public discussion (consultation), whereas citizens too often avoid using official government public consultation platforms.⁴ Moreover, from the government perspective, citizens' political debates on social media are not viewed as legitimate policy discourses. Partly, this is due to the lack of easy-to-use analytical and demonstration instruments to show discussion outcomes in a format convenient for decision- and policy-making. The success of institutionalizing policy discourses online presumes a need to re-conceptualize digital interactivity—the core feature of the Internet and democratic deliberation—in the discursive and social aspect rather than in terms of technological artifacts, such as hypertext, URLs. Perceived in this way, interactivity is indispensable to form collective will, shape social relations, generate both public and non-public opinion, and express unorthodox 'truths' through interaction between citizens and their solidarity groups in the cyberspace.

In our view, there are three main conclusions that can be made regarding the current state of play. The first is to reconsider the usefulness of building comprehensive, feature-rich and as a rule expensive e-participation and e-democracy platforms that often cease to exist soon after the project ends. In this light, the second conclusion suggests moving to more flexible e-participation services interoperable on different media platforms and types. Such cross-platform services would produce discourse analytics instantly and on demand. The third conclusion is about finding new intelligent ways to turn casual online debates among lay citizens into policy discourses from the deliberative democracy perspective.

Online Discourse as Neural Networks

On the other hand, in parallel, there has been a fast progress in the field of deep machine learning thanks to the increased computational capacities to process complex algorithms of neural networks.⁵ At present, the domain of graphics and image recognition appears to have benefited most from using neural networks. For example, a one-shot generalization approach allows to emulate the human capacity to correctly draw similar concepts of a phenomenon or object having seen the latter

⁴For example, the main platform of the Russian Government to consult the public on new legal and regulatory acts <http://regulation.gov.ru/> almost does not have any citizens' comments.

⁵See, e.g. Google's open source TensorFlow library of machine learning tools <https://www.tensorflow.org> and system, Amazon's deep learning software <http://venturebeat.com/2016/05/11/amazon-open-sources-its-own-deep-learning-software-dsstone/>, Yahoo's machine learning datasets <https://techcrunch.com/2016/01/14/yahoo-releases-its-biggest-ever-machine-learning-dataset-to-the-research-community/>.

just once (Rezende et al. 2016). In a discourse field, that is tantamount to our ability to understand the meaning of the same, say, judgment having heard it for the first time even if its wording varies greatly and takes multiple forms. Although the use of neural networks as a data mining technique as a research method has already been practiced (see, e.g., Cho and Ngai 2003), the new computational tools have yet to take root in the methodology of text analysis to bring about tangible benefits for discourse analytics. Neural networks combined with deep machine learning could assist in extracting, processing, comparing, and especially predicting semantics within the large sets of social media data (e.g., texts of the messages posted on comment threads). For example, a neural network model Word2Vector is used to analyze words in the form of vectors for identifying similar meanings in similar contexts (Nikitinsky et al. 2016). The prospect of applying AI techniques to analyze discourses and predicting their outcomes prompts changing a traditional paradigm of discourse analysis as well. Currently, it is based on content coding by trained coders which is time- and effort consuming that can realistically cover only the limited number of posted comments. Those methods that aim at crawling messages often fail to make sense of their meaning due to the limitations imposed by word tagging and parsing procedures (also done manually, as a rule).

In other words, the problem to resolve is about advancing a technology-driven collective intelligence in support of decision-makers' effort for more effective management of public input to policy discourses in a much faster and more accurate manner. But it is also citizens who would benefit substantially by being assisted with the help of new intelligent discourse services encouraging them to become more collectively minded discussants who are encouraged to reduce their (moral) disagreements through dialogic deliberation online.

We believe that deconstructing online discourses to reveal their interactivity base by using Jurgen Habermas' concept of basic validity claims (Habermas 1984, 1987) can enable the application of new intelligent technologies to automate discourse analysis. To substantiate this, we present the findings of an ongoing study into citizen discourses, on the one side, for better understanding the discursively interactive process of will formation; and, on the other side, to elaborate a range of discourse deconstruction models that could facilitate the exploitation of new deep machine learning tools to automate discourse analytics.

Deconstructing Discourse Interactivity

Metaphorically speaking, interactivity and the associated communicative (collective) solidarities online have indeed helped to liken the Internet as a new digital media to the springboard of new democracy. According to Hoff (2003: 2), the interactive relationship between the sender and the receiver of a message was paramount for e-democracy. The Internet technology permitted a radically increased interaction between the members of the public compared to the mediated interaction via the traditional channels of mass broadcasting and print media. In his

view, the Internet not only enabled ‘all-to-all broadcasting’ based on multiple communication channels but also introduced selective ‘narrowcasting’—an interaction between and within groups. The timeless and spaceless character of electronic communications enables everyone participate in virtual political debates anywhere and anytime, as opposed to the elitist ‘one-to-all’ public media model.

Consensual Versus Pluralist Dilemma

Sudweeks et al. (1998) noted, when studying interactivity in online newsgroups, significant variations in its levels from one group to another, although ideally, to be fully interactive, the posted messages should refer to as many previous posts as possible (to reach consensus). Interactivity, in their definition, is a fundamentally social phenomenon that enables cooperation based on the prevailing attitudes of acceptance and satisfaction. To be interactive, online discourses should encourage their participants to choose in a Habermasian spirit of public reasoning consensual practices rather than engaging in the polemically heated debates with no clear outcome. However, putting emphasis on agreement alone does not seem encouraging public engagement too (Sudweeks and Rafaeli 1996; Sudweeks et al. 1998).

These and other studies point at the centrality of the agreement–disagreement choice that discourse participants must take to be interactive (Baym 1996; Ikeda and Huckfeldt 2001; Gutmann and Thompson 1996, 2004). The ‘consensus versus confrontation’ dilemma is mirrored in a behavioral dichotomy of discursive strategies employed by discussants to side with those who hold the same position and confront those who have opposite positions. Evidence suggests, for example, that in an offline environment discussing politics with the like-minded peers is typically a preferred choice for many discussants, as they usually wish to be ‘surrounded by those who agree with them (and) thus reinforce... their own political views’ (Mutz 2006: 3). But such an agreeable social environment does not necessarily make political discussion meaningful. To ‘hear the other side’ presumes polemics and confrontation as well. Yet there is evidence that, contrary to face-to-face discussions, in the cyberspace citizens are more inclined ‘to debate with diverse others’ (Kelly et al. 2005: 2–3, 31). It is disagreements that seem to enable online discourses on many occasions (Misnikov 2012). As Cohen and Arato (1997: 362) argue

... the idea of a rational consensus does not mean the attainment of absolute truth... The possibility of agreeing on norms involves the possibility of rational disagreement! In short, a rational empirical consensus, the product of discourse, is open to learning and, of course, to dissent.

Role of Discourse Context

The underlying role of context is emphasized by Ikeda and Huckfeldt (2001) who argue that citizens’ political behavior depends on discourse context rather on

personal or group-specific values. A choice between discursive strategies centered on agreement or disagreement is significantly influenced by the prevailing conditions of discourse context, e.g., the political allegiance of the media hosting online discourses that either attracts or diverts citizens with differing worldviews. Our previous research has provided some inconclusive evidence in support of the view that if the media's political identity matches the participants' expectations, the prevailing discursive strategy would be based on agreeing with the like-minded fellow citizens (Chugunov et al. 2016b). However, if the host media's identity is hostile to their political preferences, the choice would be either to keep disagreeing or leave the debate.

Deploying a certain kind of discourse strategy in different contexts is thought to lead to different interactivity patterns and discourse outcomes as well. Uncovering such patterns might help shed more light on how these outcomes are produced. The influence of the context might vary from case to case. Knowing its limits is important for foreseeing critical watersheds as an indication of the impossibility of reaching agreement due to the change in context conditions. To illustrate that, Gutmann and Thompson (2004) introduce the concepts of 'non-deliberative disagreements' and 'deliberative disagreements.' In the former case, participants cannot agree 'no matter how respectfully they deliberate with their opponents,' and no matter how morally strong the opponents' positions may be; these could be the disputes about racial segregation, for example (Gutmann and Thompson 2004: 20, 28). People will not change their opinion, and therefore, discussions will not end in agreement because positions are mutually exclusive and could not be reconciled through reciprocal discourse. In the instance of 'deliberative disagreements,' despite moral differences, discussants still can find a mutually acceptable solution by disputing one another's position in a dialogical manner; that may be the case of discourses, say, over abortion policies (Gutmann and Thompson 2004: 28, 192–193, 200). Gutmann and Thompson (2004) formulate an important 'principle of the economy of moral disagreement' aimed at encouraging citizens to reduce their differences through a dialogue unless the choice is between the clearly right and clearly wrong when the opposing views can be 'reasonably rejected' (Gutmann and Thompson 2004: 7, 28). The stakes are high, they conclude, because 'democracy can govern effectively and proper morally if its citizens seek to clarify and narrow their deliberative disagreements without giving up their core moral commitments' (Gutmann and Thompson 2004: 29).

Methods of Discourse Analysis

Linguistic Approach

There is a wide variety of discourse analysis methods. Most of them have emerged as the techniques to analyze texts and images produced by traditional print and broadcast media (see, for example, van Dijk 1998; Fairclough 2003; Martin 2003;

Wodak and Meyer 2001; Jorgensen and Philips 2002; Fischer and Gottweis 2012). Many draw on the extensive use of linguistic analysis methods, such as the research arsenal of the well-established domain of the Natural Language Processing (NLP). The latter comprises a vast diversity of disparate theories and models, including those relating to computational⁶ and functional linguistics. The NLP aims at investigating the connection between words, their combinations, explicit and implicit meanings and the associated contexts by describing the language internal rules and functions, building word diagrams and trees (word parsing), clarifying context-free word representations. For instance, Systemic Functional Linguistics (SFL), advanced by Halliday (1994), looks at the language meta-functions to help revealing in a written text the author's social and interpersonal relations, as well as personal perceptions of the objective and subjective worlds, similarly to the Habermasian three types of validity claims. Likewise, Chomsky's transformational generative grammar offers approaches to text analysis, such as the concept of deep and surface structures that can capture the same meaning of the text even if the words differ (Chomsky 1965). Another important body of the linguistic scholarship relevant for discourse analysis is represented by the Austin's Speech Act theory (Austin 1962) as part of his philosophy of language. Just as the above approaches aimed at connecting words with meaning, it additionally underlies the performative role of the language by emphasizing a logical link between utterances (and texts) and the author's intention.⁷

Analyzing Discourses in Cyberspace

Analyzing online discourses poses a serious challenge for researchers and decision makers alike. The latter do not usually have adequate instruments to get an objective picture of discourse outcomes. The use of data mining, sentiment analysis, preferential voting tools and argument mapping—perhaps, the most popular instruments of Internet discussions—does not always produce meaningful results that could be used for justifying decisions. They are designed mostly for use by experts as intermediaries between citizens and policy makers. That indeed is important when the specialized expertise is needed to find solutions to complex problems (Fischer 2009). Some of these tools for engaging with experts could apply sophisticated schemes of preferential voting (Talantsev et al. 2016) that is widely used for engaging citizens in public consultation. For example, the Active Citizen e-participation initiative—a popular e-participation resource of the Moscow government in Russian—relies on preferential voting instead of debate to decide on numerous, usually small-scale, local issues of urban life. In this case, voting results

⁶See e.g. <http://www.aclweb.org/anthology>.

⁷E.g., hidden, presumed intention or implicit proposition in the case of the illocutionary type of speech acts as opposed to the openly and explicitly articulated propositional, meaningful statements described by the locutionary type of speech acts.

are tantamount to decisions,⁸ while casting votes means expressing opinions. Otherwise speaking, decisions are taken without properly deliberating them. Citizens' opinions are reduced to voting in the spirit of direct democracy which in many ways opposes deliberative democracy that seeks to enhance the legitimacy of decisions and policies by discussing them.

However, many existing e-participation tools do include discourse components aimed to document and analyze the input from the public. For example, the AI research domain 'argument and computation' relies on the NLP toolbox to logically understand the effects of utterances on discourse participants in terms of persuasion and argumentation (Budzynska and Reed 2011). This approach highlights the importance of computer-aided argument mapping to reveal linkages between proposed propositions and the arguments behind them to win over other discourse participants. The ontology-based Argument Interchange Format (AIF) that was developed within the 'argument-as-debate' approach to automate the analysis of public discourses online via argument exchange and visualization of discourse outcomes. It is supported by the dedicated argument mapping software OVA (Online Visualization of Argument), in combination with another Web-based tool Arvina representing a 'rich dialogic interface to argument resources' (Snaith et al. 2010: 4–5, 8).⁹ Argumentation is considered here as a speech act that contains implicit inferences by which discourse participants intend to influence each other. Viewed from this angle, online deliberation is a collection of the visualized argumentative dialogues.¹⁰ Recently, more research has been done to explore new computational advantages of machine learning in the field of neuro-argumentative systems, for example, by using probabilistic models of Boltzmann machines (Riveret et al. 2015). The results of such research may offer new insights into using neural networks for analyzing online discourses as well.

Especially popular is the network analysis method that examines interactivity patterns among participants via analyzing the content of their messages from the political science perspective (see, for example, Kelly et al. 2005; Etling et al. 2010). Digital sociologists study debating communities themselves including participants' identities, representations, attitudes, political preferences (Rheingold 2000; Guimaraes 2005; Baym 2006). In many ways, the popularity of the network analysis is a response to the fact that the virtual environment of cyberspace has become an effective testbed to put Granovetter's theory of the strength of weak ties into social and communicative practice (Granovetter 1982).

While each of these and other research methods produce satisfactory results in their own right, the issue of discursive interactivity viewed from the civic intelligence perspective rather than through technology lens remains largely unaddressed as a stand-alone subject of research. In addition, many existing systems and

⁸1.4 million voting sessions organized as of 15 September 2016.

⁹The paper is also a good reference source for other discussion facilitation and semantic sense-making tools such as Compendium, Cohere, Debategraph.

¹⁰See more in Chugunov et al. (2016b).

approaches cannot be easily used by non-experts due to the relative complexity of such systems and the lack of functionality to provide instant analytical feedback in a format meeting the user varied needs, as far as the outcomes of large-scale discourses are concerned (for instance, those hosted by social media). While the emphasis on argumentation is grounded on a rich Habermasian tradition of rational discourse—the cornerstone of deliberative democracy, especially in the form of procedural deliberation advanced by Joshua Cohen (Cohen 1996, 1998)—we believe that the holistic notion of discursive interactivity should not be reduced to the analysis of arguments alone. It should also encompass the participants’ interactive solidarities formed during a discourse—the so-called Transient Coalitions as coined by Kirplean et al. (2009).

Research Method, Results, Models

Claims to Validity as a Method of Discourse Deconstruction

Our research objective was twofold: (a) to demonstrate empirically that the interactively applied claim-based deconstruction of online discussions can not only reveal its multiple meanings but also help assessing the scale of their support by discourse participants; and (b) to investigate whether the concept of interactivity that guides the deconstruction process can be used to build algorithmic models which possibly could be used for developing computer tools of deliberation analytics.

To deconstruct and analyze discursive interactivity, we applied Jurgen Habermas’ concept of basic validity claims—part of his discourse ethics theory (Habermas 1984: 52, 1987: 313–314). Each of three types of claims embodies a certain discursive world the utterer refers to when making a validity claim (Table 1).

Whereas there is some similarity with the widely used sentiment analysis undertaken through tagging and mining key words, the claim-based method differs significantly, in our view, by taking a better account of the discourse context.

Table 1 Typology of basic claims to validity

Validity claim type 1	Validity claim type 2	Validity claim type 3
Fact-based objective life-world for all	Value-based shared social worlds for groups	Sincerity-based personal worlds for individuals
Claimed propositional truth about the objective world by referring to objective life-world’s known and shared by all knowledge, facts	Claimed normative rightness of certain groups by forming intersubjective solidarities based on certain shared values	Claimed subjective truthfulness about personal intentions by demonstrating personal sincerity

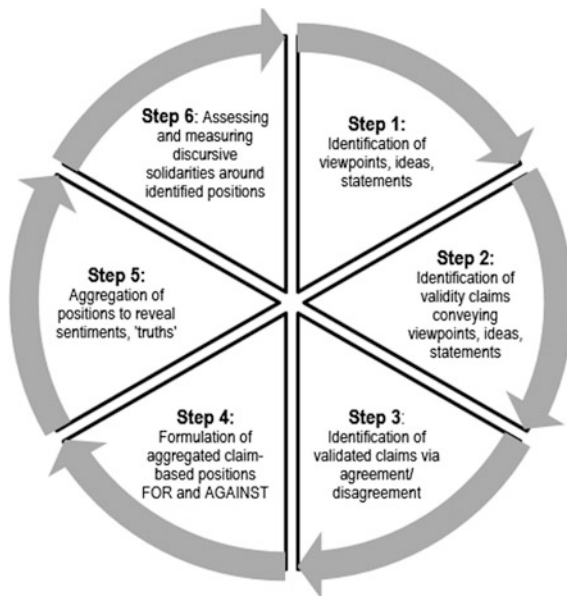
Source compiled by the authors

It is done by measuring the social ‘weight’ of the prevailing positions by discovering their respective discursive solidarities formed virtually among the participants around those positions. In other words, we use validity claims to reveal the communicatively formed group-specific social worlds with shared political allegiances and social values. That helps building interactive models of discursive hierarchies, as will be demonstrated later. We believe that by using such models it could be possible to develop discourse services, with the help of AI instruments, able to discern and track the tension between consensual and pluralist deliberative practices.

For the purpose of this study, we apply the second type of validity claims. They refer to certain ‘intersubjective normative rightness’ shared by participants’ solidarities whose members share similar positions informed by common social values and moral norms. The validity of such claims depends on the reaction of other discourse participants who may agree or disagree with the meaning of such claims, as explained above. Agreeing with them creates the discursively built issue-based solidarities. Schematically, the main steps of applying the claim-based approach are illustrated in Fig. 1.

Each post is coded according to a set of metadata that, apart from the content side, capture the information about its author and the place on discussion thread (Misnikov 2012). The coding starts at Step 1 with the linguistic and semantic analysis of the posts to check whether they contain ideas, positions, points of view, statements regarding the discussion subject that can be shared or disputed by others. At Step 2, such ideas (if available) are reformulated into the format of validity claims to convey briefly and clearly the intended-by-the-author meaning for possible validation by subsequent messages at Step 3. The act of validation is

Fig. 1 Process of validity claim analysis



performed through agreeing and disagreeing with the previously claimed meanings. After that (it is also possible that the claim is not validated), the Step 4 aggregates the claim into a distinctive position at the higher level of generalization to reflect upon the essence of the validated claims. The generalization should be broad enough to accommodate the meaning of other similar claims. Step 5 further aggregates the formulated positions to convert them into a sentiment, grievance, moral norm, ethical ‘truth.’ The last Step 6 measures the scale of the position- and sentiment-specific discursive solidarities formed among participants.

One of the main benefits of using validity claims for deconstructing interactivity is their intrinsic ‘dialogicality’ which is fundamental for the entire paradigm of online deliberation. Only those posts contribute to solidarity formation that have been semantically validated by other discourse participants, i.e., responded to agree or disagree with the meaning the posts carry. That reduces the body of messages needed to be coded, for not each post is usually validated due to the lack of clarity or irrelevance. Empirical evidence supports the effectiveness of using validity claims for identifying the collectively shaped social sentiment and values (Misnikov 2013; Chugunov et al. 2016a, b).

The practical goal of the study demonstrated below was to show the deconstruction of citizens’ opinions when they debate the food destruction policy. Another aim was to elaborate suitable interactivity-enabled models for further computer-assisted automation.

Results of Discourse Deconstruction: A Case Study

Drawing on the proposed approach toward deconstructing discourse interactivity, we apply a broad definition of the term ‘policy discourse.’ It is meant to include any policy-related public debate on the Internet. In this case, it is about the effects of the policy passed by President Putin in 2015 that banned the import of western agricultural produce in response to the imposed sanctions following the conflict over Ukraine.¹¹ The discourse took place on the Web site of *The Guardian* newspaper (UK) after it published on August 7, 2015, a lead article ‘Russians despair at food destruction as Moscow says it is having desired effect.’

Following the described steps of the validity claims analysis, the content of the first 70 messages (among over 2000 in total) posted by 51 participants on the paper’s discussion thread was coded by trained coders. A small number posts was excluded from the analysis due either to the poor wording (lack of clarity) or being off-topic (e.g., personal or rude).

Figures 2 and 3 present 24 distinctive positions (solidarities) For and Against in terms of the support received from the participants (numbers on the chart bars indicate the number of validations).

¹¹President Putin’s Executive Order of July 29, 2015; the embargo was initially set to last until August 6, 2016, but was extended into 2017; see more in Chugunov et al. (2016b).

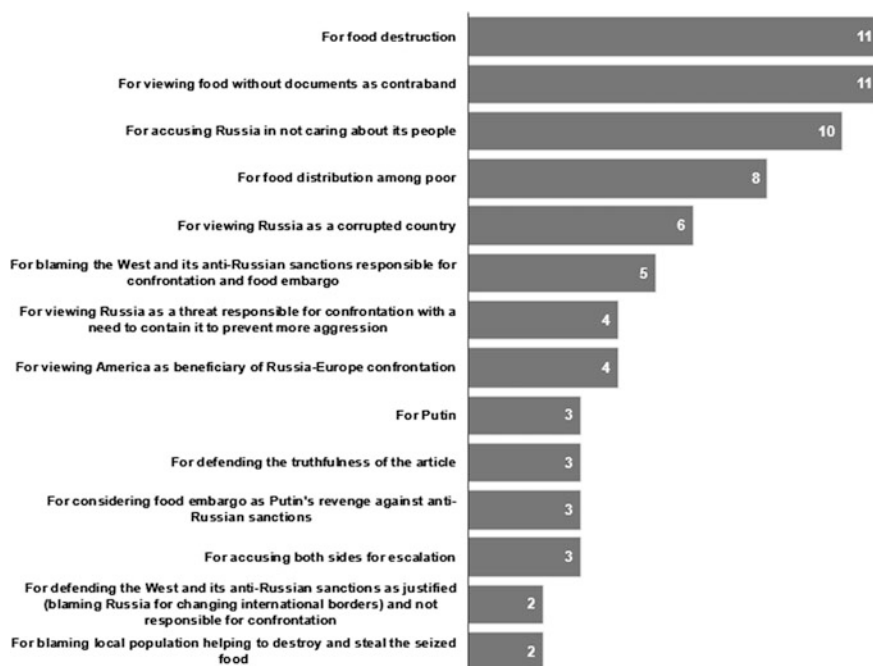


Fig. 2 Distribution of positions For (number of validation acts)

To qualify for a solidarity, a rule of at least two validated claims coming from at least two participants was applied. A total of 136 validation acts were recorded via 39 agreements and 35 disagreements linking the validated claim to a corresponding position. The number of validations (one claim can be validated by other claims, and at the same time it can validate other claims too) was as follows: 75 (55%) of For validations 61 (45%)—Against. The number of validation acts is twice as much as the combined number of agreements and disagreements, since a single act of agreeing, for example, could validate more than one claim at the same time.

In practice, the process of coding worked as follows. First, the message was checked for claiming distinct points or ideas.¹² For example, if the post explicitly said that dumping food is ‘stupid’ and, instead, the ‘authorities should have given the food to homeless, elderly people, orphans,’ then it is coded as containing two claims: (i) Food destruction is bad (because it is stupid, bad) and (ii) Food should be distributed to those in need (not dumped into the soil). These claims carry a morally and ethically justified belief (‘truth’) that destroying food is an act of wrongdoing. This belief can be reformulated as a statement, appeal ‘Food destruction must stop.’ For Michel Foucault (in his discourse theory of power), such statements form a

¹²In doing so we applied the Austrian linguistic notion of illocutionary force for identifying the intended, implicit meaning contrary to the explicitly formulated locutionary speech acts.

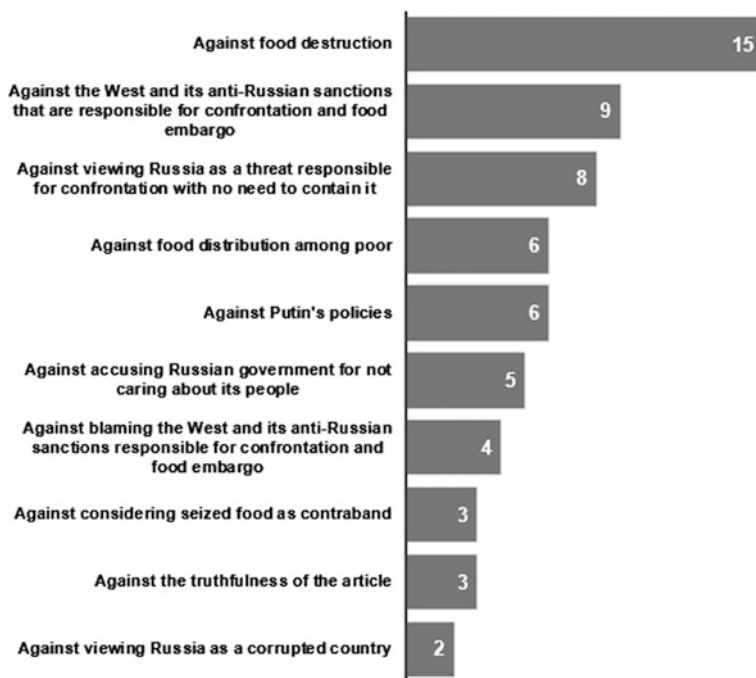


Fig. 3 Distribution of positions Against (number of validation acts)

discursive formation conveying a clear point of view—in our case this is a position that opposes food destruction. As explained above, Habermas calls such formations ‘intersubjective solidarities’ that unite discourse participants being either ‘Against food destruction’ or ‘For food destruction.’

We can imagine the entire process of claim validation as a discursive pyramid (discursive formation) which foundation consists of original messages, while the summit embodies a prevailing sentiment (negative in this case). The space in the middle sections of the pyramid is occupied by validity claims and the related generalized statements. Figure 4 demonstrates a discursive pyramid against food destruction, while Fig. 5 presents an alternative discourse case in favor of food destruction.

Another participant argues that the destroyed food did not have proper documents and therefore was unsafe for consumption (Fig. 5). That argument would make the destruction justified and lawful. The author of this post states in effect that by destroying the unsafe food, the government takes care of people’s health. This claim validates the previous claim criticizing food destruction by disagreeing with such criticism and offers three new claims: VC-1 ‘Food without documents is unsafe,’ VC-2 ‘Food destruction is normal,’ and VC-3 ‘Putin should not to be blamed.’ But only VC-1 was subsequently validated by another participant via agreement, while VC-2 and VC-3 remained unanswered.

Fig. 4 Example of a discursive formation opposing food destruction policy



Fig. 5 Example of a discursive formation supporting food destruction policy

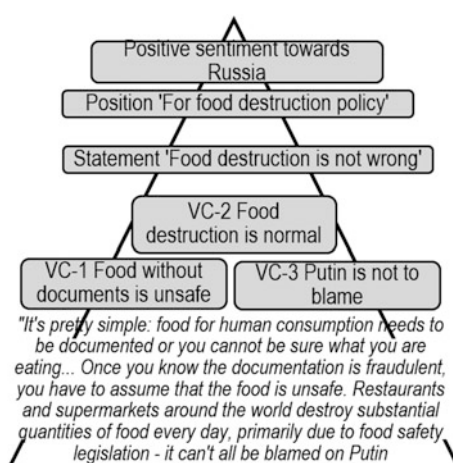


Figure 6 presents a model describing the deconstruction of ten validity claims contained in the first six messages posted in the chronological order (three posts were excluded as meaningless or uninformative).

With all 70 messages processed as illustrated above, the discourse participants could not agree over whether the policy of food destruction is right or wrong. As shown in Fig. 7, the size of the solidarities with the negative and positive attitudes toward Russia in this regard is almost the same: 66 validations made to support the positions rejecting such policy and 63—accepting it.

It should be noted that these two main solidarities are based on the distribution of validation acts, not participants. The distribution of the latter was not calculated but

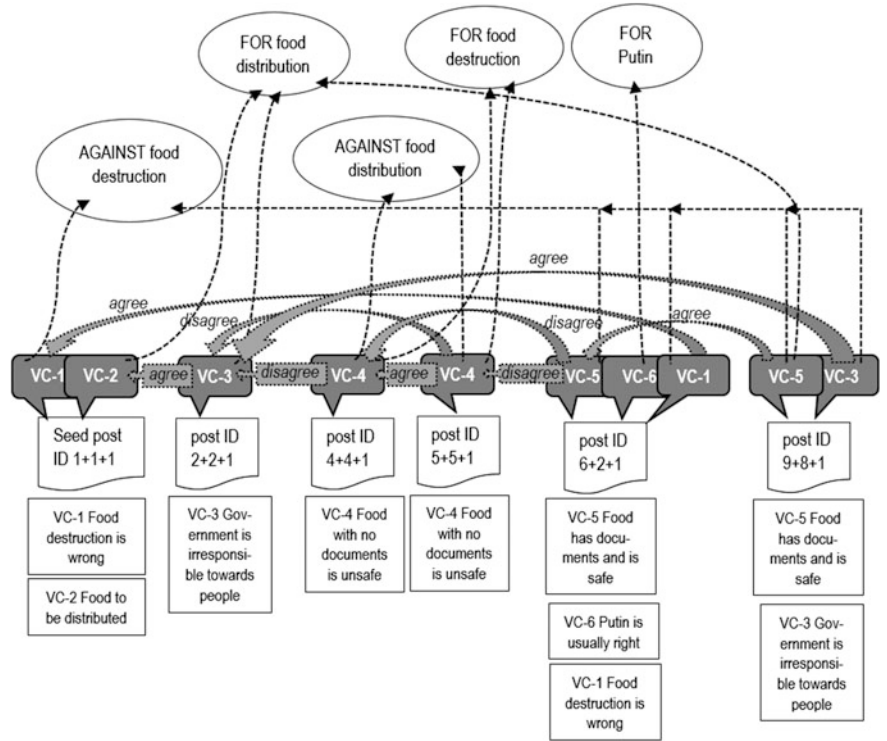
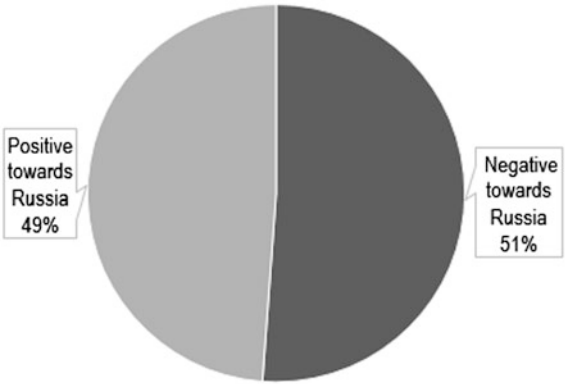


Fig. 6 Deconstruction model of 10 first validity claims

Fig. 7 Positive and negative sentiment toward Russia over food destruction policy (based on ‘For’ and ‘Against’ positions, % of all validated claims)



would look similarly as only few participants posted more than 2–3 messages. Similar charts can be produced for any position and their combinations (as presented in Figs. 2 and 3).

We believe that the results of deconstructing this discourse case via validity claims could be valuable for decision makers who are interested in knowing policy effects as seen by citizens through the lens of their collective intelligence.

Modeling Discourse Interactivity

The above case of deconstruction generates several ideas for the algorithmization suitable for building intelligent e-participation tools that could produce discourse analytics in real time for moderators, decision makers, and participants themselves. The main challenge of such tools will be to (a) identify validity claims to ‘normative rightness’ within the endless combinations of words and sentences; (b) identify (recognize) the acts of validation of the identified claims; (c) identify dominant positions by aggregating the validated positions and relevant claims (if found). It is not the aim of this chapter to describe specific algorithms and neural networks that could potentially be used to automate discourse analysis. Our objective is to reveal and describe the discourse underlying rules, principles, processes, and elements of interactivity that could be used for algorithm building and subsequent software development. Some of these are highlighted below.

We can conceptualize a simple discourse as a matrix consisting of horizontal and vertical cells encompassing, for example, 10 posts posted by six discussants who made, say, 15 claims: five posts produced one claim and five—two (light-gray-marked cells as shown in Fig. 8).

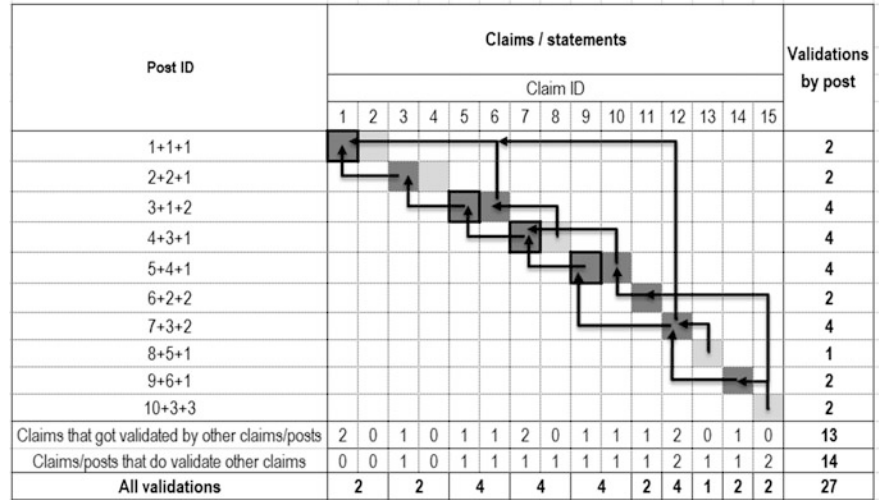


Fig. 8 Modeling validation patterns across claims and posts (pointed arrows show direction from source claim/post toward targeted validated claims)

We assume that ten claims were validated (dark-gray marked), while five were not. Among the validated claims, four were validated via agreement (thick borders of the dark-gray cells) and six via disagreement (dark-gray without thick borders). The claims made in the last post cannot be validated (considered as claim made but not validated); in a similar vein, the first post cannot validate other claims since it can only be done by the subsequent posts. The arrows schematically show which claims were validated, which were not and which did validate other claims. Figures below and at the right side of chart detail the validations per each claim and post, respectively. This model is essential for understanding the process of solidarity formation.

Figures 9 and 10 depict the matrices that illustrate how the weight of discursive solidarities ‘For’ and ‘Against’ can be calculated by posts and participants.

Using the above-simplified example for modeling key processes, we have disclosed all essential sides of discursive interactivity and empirically demonstrated how these could be quantified. The outcome of such quantification and modeling helps devising a set of external metrics to describe and compare disparate discourses by applying the same criteria. However, central to producing such metrics is the model of claim validation scenarios. Its logic draws on the interactive character of validation options that follows the rule ‘if–then.’ For example, if one participant believes that the seized food is without documents (i.e., the food with expired consumption date collected from supermarkets and restaurants as a waste and brought to Russia without or with forged documents), then it is unsafe to eat, and then it (a) should not be distributed but (b) destroyed. Once this logic is introduced for the first time and has been validated by another participant, it is

Post ID	Claim ID															
	1	14	3	12	5	11	6	10	7	9	8	13	15			
	Positions															
	FOR					AGAINST										
	Position ID															
	1	2			3			4			5					
1+1+1	2													2		
2+2+1			2			2								4		
3+1+2					2	2								4		
4+3+1								3			1			4		
5+4+1							2		2					4		
6+2+2						2								2		
7+3+2				4										4		
8+5+1												1		1		
9+6+1		2												2		
10+3+3													2	2		
Validations by positions	4	8			6			8			3					
Validations by For and Against position categories	12					17										29

Fig. 9 Matrix of solidarities scale per position (light-gray cells—positions ‘For,’ dark-gray cells—positions ‘Against’)

Participant ID	Post ID												
	1+1+1	9+6+1	2+2+1	7+3+2	3+1+2	6+2+2	3+1+2	5+4+1	4+3+1	5+4+1	8+5+1		10+3+3
	Positions												
	FOR					AGAINST							
	Position ID												
	1	2			3		4			5			
1	2			2		2					2	8	
2			2			2	2					6	
3				4					4			8	
4								2		2		4	
5											1	1	
6		2										2	
Validations by positions	4		8			6		8			3		
Validations by For and Against position categories	12					17							29

Fig. 10 Matrix of solidarities scale per participant and position (*light-gray cells*—positions ‘For,’ *dark-gray cells*—positions ‘Against’)

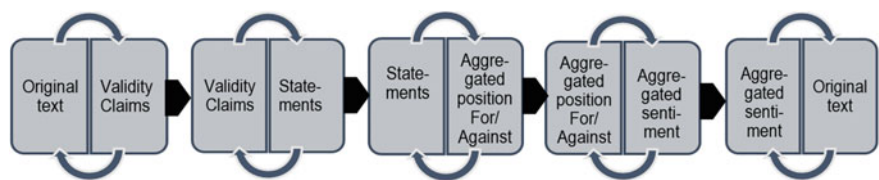


Fig. 11 Model of paired discursive units

assumed that any other participant agreeing with the claim that this food does not have documents very likely to agree with the claim that such food should be (a) banned from distribution as unhealthy and (b) destroyed. While this logical rule would not necessarily be followed by all participants, we suppose, nonetheless, that it could be the case and this scenario would be checked as the most likely one. In other words, once a certain rule is defined, it afterward becomes applicable to further posts that approve the claimed idea of the food without document, i.e., all subsequent posts are interactively synchronized with this logic.

Each instance of claim validation should be described to identify all possible ‘if–then’ options and set the most likely base (primary) scenario to follow when the new text would reveal the same or similar claim. Each such scenario will be stored in a special database as a reference source. In doing so, we pair text with claims, claims with statements, statements with positions, positions with sentiment, and sentiment with text again across the discursive formation (Fig. 11).

Discursive units paired in such a way serve as the backbone of discourse formations. We hypothesize that the ontologies built on this pairing model could be

used to train neural networks. Each discussed topic would have its own respective set (class) of searchable discursive.

Discussion

The Challenge of Reducing Discursive Disagreement to Avoid Polarization

The discourse described above is a classic example of a policy and Habermasian moral debate at the same time. By analyzing the real case of *The Jerry Springer Show*, Habermas demonstrates how claim-making exchanges become ‘meaningful when it engages with high moral standards’ (Richardson 2008: 393). That happens because of the underlying social (moral and ethical) intentions of discourse participants—for them ‘The meaning of individual speech acts cannot be detached from the life-world’s complex horizon of meaning; it remains entwined with the intuitively present background knowledge of interacting participants’ (Habermas 1987: 350). We also find the Foucault’s notion of ‘statements’ highly instrumental for its ability to individualize discursive formations. And since such statements are not units (i.e., not mere sentences) but groups, their analysis implies the identification of points of view expressed by such groups (Brown and Cousins 1986: 41, 43). We borrow this Foucauldian logic of discursive formations and adapt it to deconstruct the interactive nature of the meaning of online discourses. The result is a pyramid-shaped discourse formation viewed as main unit of larger discourse associations.

As argued throughout this chapter, the concept of interactivity is central to understanding discourse formations and respective intersubjective solidarities. On the one hand, it allows identifying and classifying the claims made, while, on the other hand, it helps describing the process of claim validation for further modeling. Interactivity is understood here as a hierarchy of intertwined but separate positions, not just the web of interacting participants. With 136 validations across 24 topics and 70 posts, the above discourse case is not interactive enough, i.e., it does not span across many previous posts, if we accept the interactivity criteria of that requires the posted messages to refer to as many previous posts as possible (Sudweeks et al. 1998).

The discussion progressed by rolling forward stages to discuss topics as they emerged (micro-discussions), with on average 5–6 interactive posts devoted to each topic. About one-third of all validations addressed four main positions that were central to the discourse of food destruction and distribution (two positions ‘For’ and two ‘Against’), with the remaining 20 positions being rather auxiliary for the core discussion issue of food destruction policy. That points at the fragmented nature of the discourse. To reduce deliberative disagreements over the effects of food destruction policy—if we apply the ‘principle of the economy of moral

disagreement' as a main aim of deliberation (Gutmann and Thompson 2004)—would require a far stronger desire on the participants' side to do so. This would lead to a far larger number of validated claims than it is the case. Not surprisingly that the discussants appear to be highly polarized when half of them supported such policy and the other half rejected. There were no indications that the 'deliberative disagreement' (the topic of food destruction falls under this category) was reduced during the debate; otherwise, the participants would change sides more often.

There are several other points to keep in mind when performing discursive deconstruction. One is to be aware that for an observer it is often only through the act of validation that the intended meaning of the post could be disclosed, especially when the post's wording is not clearly articulated. We have witnessed on many occasions that subsequent validations brought about new claims within the previous posts which were not immediately recognizable upon the reading them before the validation; that is, the claim validation process is critical for discovering intended, implicit meanings.

Another important point concerns the aggregation procedure that converts validity claims into statements and the latter into positions. Typically, one claim corresponds to one statement, although there may be instances when one statements may accommodate two-three claims. When it comes to aggregating claims to form key discursive positions 'For' and 'Against,' usually more than one validated claim constitutes one position. Positions 'For' are not agreement-based, just as positions 'Against' do not result from disagreements—it is normal to disagree to be 'For' something and vice versa. The number of positions is always less than the number of validated claims. Yet some claims may refer to more than one (semantically similar) positions. For instance, making a validated claim that the food without documents is unsafe for health reasons is tantamount to aligning its author with three positions at once: one position 'For' (For destruction of illegal and unsafe food) and two 'Against' positions (Against food distribution among poor and Against accusing Russian government for not caring about its people). When one participant does not agree with the claim that the imported food does not have documents (claims that in reality it does have documents) and then also disagrees with the claim that food should be destroyed, it is also an agreement with the previous claim that food should not be destroyed. Thus, two disagreements and two agreements are linked to three semantically distinct positions. Therefore, it is essential to accurately formulate fewer positions that are uniquely distinguishable and 'stable' to accommodate a wider variety of claims that, as a rule, are often repeated by different participants in the same discourse.

Better understanding of the scope, extent, structure, and composition of discursive solidarities over time and communities can help expand the e-participation toolbox of democratic problem-solving and policy-making. For that to happen, there is a need to start experimenting with the use of neural networks and machine learning to develop a new generation of discourse metrics for more democratic policy consultation and making.

Discourse as Neural Networks

Applying the AI approach of deep machine learning to discourse analysis requires defining rules and elaborating algorithms to execute computer programmes. The aim of this chapter did not include naming and describing specific neural networks that could be used for exploiting the potential of machine learning tools for discursive deconstruction—we simply don't know that yet. We also realize that the method of validity claims is one of many ways of analyzing online discourse from a deliberative democracy perspective. However, the interactive character of claims to validity coupled with the principle of discursive pairing might match well an equally interactive nature of neural networks and machine learning iterations.

While the effort to apply AI tools that analyze texts and argumentation (see, e.g., Riveret et al. 2015; Nikitinsky et al. 2016), the use of neural networks, in our view, is not a mathematical or computer science task alone. It is an inter-disciplinary challenge that could be overcome if three basic conditions are met. Firstly, gain a deeper understanding of the collectively interactive nature of discourses, that is, knowing better how the interactivity of individual posts can be transformed into context-sensitive worldview statements supported by respective solidarities. Secondly, build the corpus (ontologies) of such statements to adequately reflect upon the dominant positions across communities and the entire society at large, paying attention to both majorities and minorities. The proliferation of social media allows for reaching out to the least visible social groups and document their shared values. And, thirdly, work out a strategy for training the chosen neural network models for subsequent self-learning; in practical terms, such a self-learning would mean the ability to automatically associate the text of the posted message with the already known (i.e., uttered by someone else and documented in previous discourses) claim, statement, position, sentiment.

The success criteria of using machine learning for discourse analysis would include a possibility to predict the meaning of a position knowing (a) the claim(s) made and (b) predict the latter by knowing the text of the post. That knowledge would help build databases of stable discursive formations and their associations along a five-part axis 'text–claim–statement–position–sentiment' separately for agreements and disagreements and across issues, discourses and policies. In most cases, posted messages are written in casual way and may not necessarily carry an explicitly uttered meaning that is easily understood even by discussants themselves. Such meaning is often articulated implicitly and needs to be 'deciphered' not only linguistically and semantically but also contextually—that is, be interpretable socially, politically, culturally. The use of probability and approximation models could possibly predict the missing information about the intended meaning through the trained neural networks that are able to learn how certain texts relate to certain claims and the latter relate to certain statements and positions.

Conclusions

In this chapter, we have demonstrated both the conceptual and practical side of the discourse deconstruction method applied to the casual online discussion on the policy of food destruction in Russia. Using the claim-based approach has helped to produce a new type of discourse analytical metrics allowing to implement in practice a critically important for policy discourse ‘principle of the economy of moral disagreement’ to reduce deliberative disagreements—the main goal of deliberation. By using Jurgen Habermas’ concept of basic claims to validity as an instrument of discourse deconstruction, we show how to identify key positions that define the entire discourse and then break down it into position-specific discursive formations (intersubjective solidarities). The latter add the social context into discourse analysis performed in such a way—this is a substantial advantage of the validity claim approach compared with other more linguistically focused methods. Using the case discussed above, we demonstrate how the comments posted by ordinary citizens on discussion threads transform into collective political meanings that, in our view, can be accepted as a legitimate form of discursive public opinion.

While we have found that the discourse used as a case study was fragmented and polarized over the effects of food destruction policy as seen from abroad, we also realize that it was not the aim of that discussion. The main motivation was to express personal position, defend it, and side with other like-minded discussants. This is acceptable for casual political talks on social media. However, to meet stricter deliberation requirements needed to implement policy discourses proper (such as public consultations), participants should be aware of the expectation to reduce their moral disagreements. Yet, even in this case of the ordinary political talk, the proposed method of discourse deconstruction and analysis has appeared to be effective. There seems to be a need to have specialized tools that would monitor and warn against excessive polarization of views. It would also assist participants in reducing their disagreements. The participants could use it for self- and collective learning to acquire new competences in participating in public dialogues in the cyberspace. For neural networks that are these days easier to handle thanks to the increasing choice of machine learning models and algorithms online discourses is an endless corpus of big data. Making sense of them by using the claim-based method of discursive deconstruction could respond to the appeal of Beth Noveck to support ‘the rise of the citizen expert’ with the help of data-rich technology and thus raise the efficacy of citizen engagement for making ‘government more effective’ (Noveck 2016).

Apart from the communication and new media side, the benefits of having easy-to-use discourse analysis tools could expand research capabilities of political scientists, deliberative democrats, sociologist, and communications scholars to better understand modern society in its full diversity.

Finally, we think that the proposed approach to gathering discourse analytics contributes to the broader agenda of collective (civic) intelligence and cocreation for the public good. Policy makers would especially benefit from a more democratic

way of solving societal problems through the increased legitimacy of their decisions in the eyes of citizens.

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Part V

e-Government Trends

From Weber to the Web... Can ICT Reduce Bureaucratic Corruption?

Grzegorz Makowski

Abstract The main purpose of this paper is to analyse question if, and if yes, then what potential have information technologies to solve the traditional problems of bureaucracy—tendency to inertness, to depart from the mission to serve public good and to transform into one more interests group or structure susceptible to cronyism, conflicts of interest, corruption and other irregularities. The text is also a reflection on how new forms of control over public administration, driven by ICT may change it and push it towards participatory governance based on the principles of dialogue and civic engagement.

Before we discuss the main topic of this paper, namely the arguments for the proposition that information technologies can limit the risk of administrative corruption, it is worth to cite classic authors in sociological theory and briefly describe the history of public administration in the very context of struggles to limit its dysfunctions. The paper will deal mainly with new technologies, but to better understand why today we believe it is the information technologies that can bring an answer to the question how to control administrative corruption, the deficiencies of the traditional methods to prevent and fight the problem should be highlighted. In that context, it will be easier to realise what is the contribution of new technologies in this field. And most importantly, it should also be reminded why at all the control over public administration is so important, in particular in democratic systems.

Bureaucracies and Bureaucratic Corruption

Max Weber, well over a century ago described the phenomenon of bureaucracy in sociological terms. He was fascinated mainly by his contemporary Western bureaucracies. In his opinion, they were closest to the ideal type of rational action

G. Makowski (✉)

Collegium Civitas / Stefan Batory Foundation, Warsaw, Poland

e-mail: g_makowski@outlook.com

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291

(*zweckrational*) (Turner et al. 2012; 167–207). Nevertheless, one of the conclusions of his analysis of bureaucracies indicates that as they develop and grow larger, always the same problem arises, namely that they have the ironic tendency to compete for power with their political superiors. As he wrote in the book *Economy and Society*: “[...] democratic” Parliament; [...] or the President elected by people, or hereditary “absolute” or “constitutional monarch—in relation to trained officers performing administrative tasks always remains in the position of a layman to an expert. And every bureaucracy endeavours to still increase this edge of professional expertise through making secret its information and intentions. Bureaucratic administration, in line with its inherent tendency, is always an administration excluding openness. Bureaucracy tries hard to protect its knowledge and actions from criticisms” (Weber 2002; 719). Namely, the main and permanent problem of bureaucratic structures is lack of transparency.

This brilliant observation made by Weber remains accurate and mostly valid to this day, independently of the fact that since his times, bureaucracies have undergone many revolutionary changes, though Weber thought that at his times they reached almost an ideal form and all that remained for them was, as it were, to “implode.” Weber repeatedly expressed his concerns that, chasing after heartless rationalism, bureaucracies would finally become unwieldy, irrational, corrupted and will pose a threat to other structures—in particular the democratic political system or developed free-market economy (Weber, p. 1072–1074). The Weber’s gloomy diagnoses were taken up by many of his successors, only to mention Robert Merton (Merton 2002; 255–266) or George Ritzer and his concept of “mcdonaldisation” (Ritzer 1997; 39–63).

The problems with bureaucracy identified by the founder of sociology still persist. Also all subsequent paradigms of public administration operation, starting from the turn of the nineteenth and twentieth centuries, usually expressed in specific reforms initiated by politicians in various countries, have always had the same objective—to increase control over bureaucracy and limit its power. Also the transparency of bureaucratic operations has always been a key problem.

Bureaucracies, as rightly indicated by Weber, tend to evade the control from their bosses, to hide the true scale of their influences and to act in a non-transparent way. Moreover, the process can be very rapid (especially in the present times). Today, bureaucracies while for sure built by wise, trained people, without proper control quite easily transform from “learning” organisations into so specialised and hermetic entities that virtually nobody from the outside world is able to supervise them. And then, not only the risk of abuses to the detriment of their bosses or citizens, but also the risk of corruption immensely increases.

So ironically, it is the blind drive towards rationality, when accompanied by the lack of transparency and supervision, that leads to abandoning of the original purpose of every bureaucratic system. It is in this way that they become so prone to corruption. It is not by accident that the basic academic works on corruption in general deal with the bureaucratic corruption, and the majority of anticorruption policies start, for better or worse, from trying to fight the phenomenon exactly in public administration (Soreide and Rose-Ackerman 2015; Rose-Ackerman and Truex 2013; Grindle 2004; 525–548; Makowski 2006; 159–182).

Before going further, we should at least briefly define what corruption means for us. In view of numerous definitions of corruption and huge literature that has been written (especially starting from 1990s) on the subject, we do not intend to open a new discussion on what corruption means. We will refer to the concept combining some traditional notions on corruption with slightly more modern interpretations. For the purposes of the present analysis, we assume that corruption is a form of particularistic distribution of various goods—income, property, access to public procurements, etc. (Mungiu-Pippidi 2011; 11–13). The manifestations of particularism, or methods to limit access to various goods, vary. They can take the form of conventional bribes whereby some people attain privileged position in relation to others and can always get what they want by bribing the person who decides on the division of goods; or staging tender procedures that limits competition on the public services market; or manipulating the recruitment procedures for official jobs; or trading in official posts that in many countries was still normal in the nineteenth century; or hiding information that should be public. Lack of transparency might also be considered as a form of particularism (corruption).

A Short History of Hopeless Struggles with Bureaucratic Corruption

Taking a look at the problem of corruption in bureaucracies from historical perspective, we will confine ourselves to the modern times and present a brief analysis of feudal bureaucracies.

Early Modern Bureaucracies and Trade in Public Posts—Pure Corruption or Maybe an Anticorruption Recipe?

In those times, an “official post” as such meant something quite different than it means today—public service. Public officer, bureaucrat, was simply a servant of the monarch who acted according to the saying attributed to Louis XIV that “the state is me.” Public posts were seen as vested interests or simply possessions of particular persons, rather than a set of duties that have to be fulfilled for some impersonal state or its citizens (Mączak 1985; 211–244, Hintze 1970). For in those times, there was no clear-cut distinction between public and private spheres which forms the basis of all today bureaucracies, where public officers are only administrators of certain resources that belong to the community called the state.

Public offices were not only a kind of semiprivate property, but also a commodity. For example, Henry III, the king of France (and for a brief period also of Poland), and his successor, Henry IV, greatly multiplied public posts and sold them to the representatives of nobility. *Paulette*—the mechanism introduced in the beginning of the seventeenth century which remained in force with minor amendments till the end of

ancien regime was such a form of institutionalisation. As writes Antoni Mączak, under the system French royalty sold official posts for fixed prices and collected annual fees, as well as fees for selling the posts to third parties (one sixtieth of the nominal price of the post) (Mączak 1985; 230–232). Soon, around the system a whole market for trade in official posts developed, enabling the monarch to have (of course, limited, but anyway some) control over administrative apparatus and individual officers (Kamen 2000; 104). Charles Loyseau, a French lawyer living at the turn of the 16th and 17th centuries, famous for his descriptions of the life of contemporary France (and mainly for his work, *Traité des ordres et simples dignités* of 1610), mentioned that the post of counsel in the Paris Parliament cost in 1605 18,000 French pounds, while under Louis XIII the price reached 70,000 French pounds, and in 1660 in 14,000 French pounds. Only during a half of the sixteenth century, the French royalty sold 50 thousand official posts, trying to gather resources to cover its expenses.

So along with Weber, we could assume that such structures were totally non-rational or corrupted if compared with the ideal types of action defined by him (Weber 2002; 17–24). However, the mistake made by Weber and the authors of traditional accounts of corruption lies in the fact that as a point of reference they took contemporary ideas of universalistic principles governing the world. The feudal bureaucracies were in a sense rational. In the absence of management tools of the kind that we have today at our disposal (technical means, efficient political system, methods of management, control, auditing, etc.), they were effective management tools from the point of view of the king who strived to monopolise power. Before official posts became a commodity, they had been an asset bequeathed from generation to generation within individual families. Henry Kamen in his book on the life in the early modern Europe describes an astonishing, but typical for that period example of Joseph Ortiego, the secretary of the management board in a royal estate in Valencia, who still in 1696 sought to pass the post to his nephew, after it had been inherited within his family for 200 years (sic!). In most countries, the new system created opportunities for social advancement still not for all, but nevertheless for large (larger than before) groups of talented, and often well-educated people (e.g. from bourgeoisie).

Thus, the trade in public posts that flourished in Europe in the 16th and 17th centuries, however strangely it may sound, formed also an instrument to fight corruption (Klaveren 2007; 83–95). Many recognised social historians (e.g. Klaveren, Scott, Mączak, Braudel), when analysing the matter, are inclined to talk about proto-corruption rather than corruption, in order to limit the possible disputes on whether early modern bureaucracies were corrupted or not.

Civil Service—A Really Ideal Type of Modern Public Administration?

Another breakthrough in the fight with the problem of bureaucratic corruption was the development of the modern systems of civil service. Already mature nation-states, and in particular empires such as the Great Britain ruling over many

colonies, tried to increase profits for metropolises and reduce both economic and political risks, and of course to harness corruption. The British had opportunities to watch Chinese mandarins in the beginning of the nineteenth century and started to experiment with the system of rigorous education for servicemen and development of special ethos for this group through education (Horton 2006). The acquired knowledge, competencies and values were supposed to form the main safeguard against the already-well-known deficiencies of bureaucracy.

The predecessor to the Western civil service was the administration system developed in the East India Company in the beginning of the nineteenth century. The first step in the process was opening near London in 1806 a special school, East India Company College, with the task to educate employees for the company and organise relevant exams. The first exams for the “civil service” of the East India Company took place in 1829. Soon after, in 1853 William Gladstone decided to establish the imperial civil service based on the principles developed by the Company. The system was introduced quite quickly, for in 1854 the Civil Service Committee began its works, being a government body responsible mainly for supervising the adherence to the principles of open and competency-based recruitment of candidates for official posts in the British Empire. And only four years later, the imperial civil service replaced its predecessor in India (after the collapse of the Company in 1858).

The clearly beneficial effects of introducing bureaucratic apparatus recruited based on professional criteria and proper training of candidates for official posts were soon noticed in other countries. The next place where the British model of the civil service system was introduced were the USA, where in 1883 the so-called Pendleton Act was passed, almost fully abolishing the former practice of using political criteria in selecting candidates for the great majority of posts in the federal administration (the so-called *spoils system*), and introducing regulations and institutions to guarantee that the posts would be held by persons with appropriate knowledge and qualifications. So what was so special in the civil service systems?

Weber indicated several characteristics of democracies of this time that properly described the phenomenon, and even today to a great extent remain valid. They include first of all the supremacy of competencies and education of public officers. Second, the civil service, bureaucratic structures were supposed to operate according to precisely defined rules set forth in generally binding legal regulations. Third, the crucial principle of operations of the new bureaucracies was to be official hierarchy, i.e. fixed system of supremacy and subordination, being on the one hand an important tool for supervision and control, and on the other a guarantee for public officers that when any problems arise, they can trigger appropriate reaction within the bureaucratic structure. The hierarchy also defined the career path for public officers, so that they knew what rewards await them if they properly perform their duties. Fourth was the principle of documentation. All activities within the new bureaucracy should be written down, so that when needed, the actions of public officers could be always checked against the standards described in legal regulations. It is another important instrument of management and control of modern bureaucracies. And finally, and perhaps most importantly, the job of modern public officer was to become from that time on a profession.

The civil service was undoubtedly a step forward in the development of bureaucracies, and it was not by accident that its introduction coincided with the development of parliamentary democracy, free market and notions such as the rule of law (Ferejohn and Pasquino 2003; p. 242, 261). The problem was that though bureaucracy based on meritocratic values, the idea of the rule of law and public service, and the parliamentary supervision, was for sure a more efficient means of preventing administrative corruption than the trade in official posts, it was still a imperfect system. The system of education of public officers was defective. It was hard to maintain civil service ethos and discipline in the highly hierarchical, depersonalised structures. An extreme example of corrupted bureaucracy, as envisaged by Weber, proved to be the German administration. All its dysfunctions became apparent in the period of the Third Reich when it proved to be a structure that was not only thoroughly corrupted, but at the same time heartless and able to execute automatically even the most inhuman orders from its political bosses (Grunberger 1987; 192–202; Mann 2000). Even worse, analyses led after the war by, e.g. Robert Merton or Philip Zimbardo showed that the problems of Nazi bureaucracy can easily occur in any other similar structures.

So soon it became obvious that the nineteenth century idea of control and supervision over bureaucratic structures only through high initial requirements of competencies for candidates for official posts, developing and cultivating official ethos and creating a network of legal requirements and political control, was in fact better than all previous solutions, but still insufficient (Huntington 2007). Moreover, it seemed that all the mechanisms failed to solve the key (at least from our perspective) problem of the lack of transparency in bureaucratic operations, and ironically—if the new control means were not implemented effectively—could even intensify it.

Bureaucracies have the ability to transform the means intended for their supervision into another layer of professional knowledge or even professional secret. To illustrate the problem, it is worth to cite observations of an Australian sociologist, Adam Jamrozik, who analysing the issue of constructing social problems, or phenomena that remain one of the main objects of interest for all bureaucracies, described a category of entities ironically called by him *helping professions* (Jamrozik and Nocella 1998; 73–77). These are various agencies, usually included in a broadly defined public administration, that as a result of political decisions are delegated with the tasks to deal with specific issues (social problems). For example, such agencies include social assistance centres helping unemployed, poor or homeless persons, or law enforcement agencies having the task to counteract and fight crime. By political decisions, such entities are equipped with more or less standard instruments to deal with a given issue. They have at their disposal appropriate laws, trained, specialised teams of workers (professional public officers) and various technical means (budgets, buildings, cars, etc.), in short, all they need to operate professionally and effectively. The problem is, as noticed by Jamrozik, that such agencies that in principle should help the society and the state in solving social problems or managing current matters, can easily transform into entities that in fact fail to solve the problems, and can even intensify them, and at

the best only maintain them in controllable scale that is convenient for them. For if they solved the given problem, they would lose their *raison d'être*. Hence the term *helping professions*—for they help themselves rather than the state or the society.

New Public Management—Can Public Bureaucracies in Fact Learn so Much from Private Bureaucracies?

Another turning point in the development of bureaucratic structures and thinking about how to protect them from the risk of corruption was the paradigm of *new public management* (NPM), introduced in the 1970s (Hood 1991; Gruening 2001; Ostrom and Ostrom 1971). Of course, the process was enhanced not only by the intention to counteract corruption, but also by many other factors, mainly the growth of neoliberal thinking connected with a general loss of confidence in centres of power, leading to focusing more on private sector seen as more effective and as a source of models for other spheres of social life, including the public sector.

Contrary to Weber's who saw no special qualitative differences between private and public bureaucracies, it was assumed that "management mechanisms used in the private sector can also be implemented in the public sector" (Klages and Löffler 1998; 42). Another NPM idea was focusing on financial effectiveness and aim-oriented management (even at the cost of less restrictive abiding by legal regulations, seen in the Weberian model as a sacrosanct requirement). Still another idea was to assume the perspective of consumers, or seeing the activities of public administration agencies in terms of goods and services offered to citizens similar to goods offered to consumers on the market (Hood 1991). And finally, a considerable change, also from the point of view of our analysis, was introduced in the vision of public administration.

In the traditional Weberian model, bureaucracy took the role of a power centre in its dealings with citizens, while NPM rather prescribed using the philosophy "customer is king" and taking the servient role not only in relation to their political bosses, but also, and maybe above all to citizens, especially in democracies. In practice, it led for example to the strengthening of the right of access to public information, the key solution helping to break the monopoly of bureaucratic knowledge and to broaden the scope of control over it, according to the thinking that if customer is our king he or she should know a lot about us. In addition to opening bureaucratic structures, NPM also stressed the development of techniques to monitor and evaluate the results of operations of public institutions (Gratto et al. 2002; Stubbs 2011; Berliner 2014).

In Weberian bureaucracy, the ethos had, so to speak, a ritual dimension, while under NPM it became significantly instrumentalised, to the extent that in the vocabulary of administration managers the term "ethical management" was incorporated. It means complex analytical systems and indicators for particular posts in public administration related to various types of risks, including in particular the risk of corruption, and systematic education and information activities directed to

public officers, including systems for protecting whistleblowers (which started to really flourish already in post-NPM era) (McCourt 2005; 227–242). Another term that was popularised under NPM is accountability, or responsibility of public institutions for their actions—first in the narrow, traditional sense, but in time also in a broader, social meaning—as responsibility before citizens.

The paradigm of NPM, like the two previously discussed turning points in the evolution process of bureaucratic structures, was a step forward, and like before soon aroused criticisms. Those most sceptical simply argued that the whole concept was a fake, because it failed in any way to solve the old problems of bureaucracies (Hood 1991), and to some extent they could be right, for it seems that, for example, the inclination to corruption on the part of public officers within the institutions transformed under NPM model is not drastically lower than in the old Weberian model. But the main objections to NPM concerned the fact that the model failed to fulfil its key promise, i.e. that spending on administration (still growing) would increase the effectiveness of its operations. This objection was probably the hardest for the proponents of NPM, because it seemed to be corroborated by numerous empirical data (Atreya and Armstrong 2002).

From our perspective, the gravest criticism of NPM said that the new model, ironically, even intensified the above-mentioned problem of *helping professions*, and even more, became a vehicle for a new form of particularism exercised by the new bureaucratic elites—so-called public administration managers (Makowski et al. 2014; 89–114). And finally, the criticisms of the NPM model go straight to its core idea and question the assumption that public bureaucracies are in fact so indebted to their counterparts in the private sector. Economic crises of the late 1990s and the big financial crisis of 2008 showed beyond all doubt that private bureaucracies are not so much better as to serve as an example to anyone. Like public administration, they are susceptible to all forms of corruption and abuses.

Anyway, NPM had at least one important merit—it switched thinking about bureaucracy and control over bureaucratic structures very much towards citizens. It supported development of idea of access to information what is crucial to the key problem of this analysis.

Open Government and ICT in the Service—Postmodern Tools of Combating Administrative Corruption

In this way, we reach the main topic of our discussion, for today the leading idea in public administration organisation is the very slogan of open government. In contrast to NPM, the idea has no technocratic background (though to some extent both concepts are linked together) (<https://www.whitehouse.gov/open/documents/open-government-directive>). Academic arguments for this approach are rather derivative to the changes in public administration initiated by the idea, while at the same time the idea of open government, in principle, is not new nor has any special, canonical

form (Harlan and Robinson 2012). In short, it consists in a set of detailed recommendations to make available to citizens all information on the activities of public entities and to include them possibly directly in decision-making processes. In more advanced versions, open government means participatory model of taking public decisions, where both public officers and their political superiors loose the monopoly for deciding and share their power and responsibility with the stakeholders, or more generally with citizens [particular example of implementation of the idea are so-called participatory budgets (Canning 2014), more and more popular on the local level, or deliberative surveys (<http://cdd.stanford.edu/what-is-deliberative-polling/>)].

In practice, the concept of open government remains quite diffuse and multi-dimensional. In part, it is quite abstract, but more and more often it takes the form of very specific solutions, as in the above-mentioned examples, or even big government or international programmes implemented with a great momentum. For example, the European Union has for years financed heavily implementation and promotion of solutions that enable citizens to participate in public decision-making processes both on the local and central levels (http://enrd.ec.europa.eu/themes/clld_en). The financial perspective only for the years 2007–2013 includes considerable resources (over 8 billion Euros) for development and practical implementation of the concept of *Community-Led Local Development*. A special political emanation of the idea of the open government is the *Open Government Partnership*, an international initiative launched by President Barack Obama and several other country leaders in 2009 by the United Nations Organisation.

But for us, the most important aspect of the open government idea is the fact that it contains a strong anticorruption element, because quite naturally it is focused on the main problem and source of bureaucratic corruption, so well described by Max Weber almost a century ago—the lack of transparency in government operations, and in particular within its administrative structures. As a result, many specific tools have been developed for preventing and combating this particular form of corruption. In this paper, we will discuss several examples of such solutions and try to answer the question to what extent such solutions can really strengthen the potential to counteract corruption.

Open Government and E-Government

One of the main elements of the model of the open government is broader opening of public administration to citizens. There are many ways of the opening, but what they have in common is broader use of information technologies, and one of the main of its forms is the idea of e-government. In short, it consists in using electronic communication methods for performing the tasks of public authorities (including in particular public administration), and in particular for analysing premises of decisions, exchange of information and internal and external communication (Coursey and Norris 2008).

The aim of open government, e-government anticorruption tools is to make the operations of bureaucratic structures more efficient, enhance accessibility of services provided by them and increase their economic effectiveness. The e-government has mainly technical dimension, and in principle introduces no changes in bureaucratic structures as such, but the concept could not have spread if the market perspective embedded in the NPM model of public administration was not adopted (Prakash and Singh 2008). For in this model, like in NPM, activities of public administration are seen in terms of goods and services produced to meet the needs of particular customers or consumers, in particular citizens. In this way of thinking, all tools that enhance the quality, the speed and the cost-effectiveness of the “bureaucratic system of provision of services” should be used in public administration.

In principle, e-government has several functions. It makes citizens, political superiors and other groups of recipients of its services more satisfied. It reduces the costs of administrative operations (solutions such as electronic system for circulation of documents, less need for personal meetings, travels, etc., speedier flow of information and actions, reducing costs) (Bekkers and Korteland 2005). It supports the development of bureaucratic organisations by encouraging public officers to improve their qualifications and knowledge. Most importantly from our perspective, it aims at increasing the general quality of the governance, strengthening the legitimisation of public institutions, enhancing confidence in them and above all creating opportunities to improve transparency of their activities, and thus strengthening the ability to prevent and fight corruption.

In addition to the fact that opening the resources and proactively making them available to citizens on the Internet as such makes the activities of bureaucratic structures much more transparent and gives an additional stimulus for economic growth, more importantly for us, new forms of control are enhanced over the public administration operations. And in a while, we will discuss examples of such innovations.

Is E-Government Really Helpful in Limiting Bureaucratic Corruption? A Short Review of the Results of International Comparative Research

Already in the 1990s, efforts were undertaken to evaluate whether information technologies enhance the capabilities to combat administrative corruption. Most of the research were case studies and quantitative analyses based on the global indicators of the quality of government, corruption perceptions, growth of new technologies, access to the Internet or ways it was used. All those approaches had their natural limitations, but they let us at least generally assess whether ICT are or are not the perfect means to crush administrative corruption.

Most international research offers arguments for the proposition that ICT have positive effects on abilities to limit corruption, but on certain conditions. As already mentioned, Alina Mungiu-Pippidi argues that in general almost any kind of ICTs has positive effect on an ability to control corruption. In her paper from 2013 *The Good, the Bad and the Ugly: Controlling Corruption in the European Union* she provides interesting set of correlations showing that there is quite strong relation between the World Bank's indicator of "control of corruption" and indicators of availability basic public services online, per cent of population using e-government services or even general per cent of internet users in population (Mungiu-Pippidi 2013). Also other researchers report similar, positive results (See: Plascencia 2015; Chandan and Sarangi 2014). However, these promising findings should be read with some restraint.

The study from 2011 led by three Taiwanese researchers, Mon-Chi Lio, Meng-Chun Liu and Yi-Pey Ou, based on several global indicators used to evaluate the scale of corruption threats and data from the International Telecommunication Union (for the years 1998–2005) showed that the Internet can help to fight corruption through enhancement of the transparency of operations of government agencies, including in particular public administration. It can also increase the transparency of their activities and reduce to some extent arbitrariness of their decisions. And if at the same time it helps citizens to develop and use new forms of social control over public institution operations, then it also increases responsibility and accountability of public officers. The Internet, when properly used, can also help to reduce the scale of perceived corruption which often reflects the lack of familiarity with the operations of public institutions and related lack of confidence in them, rather than real abuses committed by public officers (Miller et al. 2001). However, as shown by the research of the Taiwanese authors, the positive effects of ICT are not decisive in whether public administration is more or less susceptible to corruption. They can also be visible only when in a given country some minimum conditions for using the instrument exist—such as respecting some basic principles of democracy, ability of the government to recognise crises and political will to implement reforms. In short, the new information technologies can work only when they are embedded in favourable, democratic environment and are supported by a real drive to implement reforms on the part of the decision-makers.

Similar conclusions were reached by Martha Gracia-Murillo. In her article of 2013, based on the good government indicators, the already-mentioned Telecommunications Infrastructure Index and Web measure index, she showed that beyond any doubt, at least in relation to government (central) administration, greater availability of various information and services provided by public institutions through the Internet translates into more positive perception of corruption measured by the indicators of the World Bank and the popular Corruption Perception Index of the Transparency International (Garcia-Murillo 2013). Gracia-Murillo led many thoughtful statistical analyses concerning 187 countries, based on data from the years 2002–2008. As an example supporting the general diagnosis based on global indicators, she cites the reform of public procurement system in Chile (Chile Compra) from the beginning of the twenty-first century.

The Transparency International Chile thoroughly evaluated the system in 2007, taking into account data on its functioning from the years 2004–2006 and opinions from its users. The survey led by TI-Chile showed that public contracts covered by the system were seen as less susceptible to corruption. In fact, it was found out that 39% of detected abuses in public procurements concerned institutions not covered by the system Chile Compra, and only 9% of institutions that used the system had problems with corruption. Gracia-Murillo argues, based on her analyses and known case studies on implementing e-tools in Chile, India and Peru, that they not only help to prevent corruption, but also enhance the quality of public services.

In relatively recent (as compared to the time when this paper is written) analyses, two Rumanian researchers, Dan Lupu and Corina Georgiana Lazar, based on synthetic indexes Corruption Perception of Transparency International, E-government Index, Control of Corruption Indicator and Government Effectiveness (World Bank indicators), showed that in the new member states of the European Union, formerly belonging to the Soviet bloc, and thus having definitely higher level of risks of corruption (as a result of weaker state structures, ineffective law enforcement agencies, etc.), introducing e-administration solutions had a significant positive impact on the abilities to limit corruption. The development of e-administration in the old EU member states had weaker impact on the abilities to counteract corruption, but it was still significant on the level of correlations, which can be explained, for example, by the fact that the general quality of public administration operation in the Western countries is higher, so the effects of e-government are not so visible in the existing context.

The results of the Rumanian researchers again show that telecommunication and information solutions introduced in public administration as such are not enough to guarantee that corruption will be limited, the quality of public office operations will be enhanced or they will be more positively perceived. As indicated by Taiwanese researchers, the context is also important—the cultural environment, political will of decision-makers, the willingness to implement reforms, and specifically, to use e-tools to limit abuses in administrative structures. Moreover, as shown by Gracia-Murillo, overinvestment in electronic tools in public administration can bring effects that are opposite to what is expected of them. Inflow of resources for digitisation of public offices, even under a campaign of limiting corruption, can arouse temptations among public officers and politicians themselves to use the money for purposes other than intended. Examples of such corruption can be found in many countries, e.g. in Poland (up to time when this text was finalised, the biggest corruption scandal ever that happened in Poland, in terms of money involved, was related to tenders for e-governance projects, and was named Info-aféra, what could be translated into English as Info-Gate). They show that the investments in e-administration themselves require supervision and protection from corruption.

To sum up what has been said so far, it can be noted that in the field of counteracting corruption in public administration, the available meta-analyses indicate the following main aspects (of course not only, but for sure one of most crucial) of using ICT tools for limiting administrative corruption:

1. **Transparency.** Information and communication technologies, together with the development of legal regulations granting access to public information, more than ever before motivate bureaucratic structures to proactively disclose information on their ongoing activities and their gathered knowledge (reports, documents, expert opinions, source data, etc.). It leads to breaking the monopoly of bureaucratic structures for their internal professional knowledge.
2. **Better organisation of public office operations.** E-tools in public administration, such as electronic circulation of documents, Internet pages, e-service portals, make the work of public officers more efficient, simplify contacts with citizens, automatise decisions, and make control and supervision easier within the institutions. In this way, they contribute to limiting discretionary decisions and shorten the time of decision-making processes, thus reducing temptations and opportunities to manipulate the process on the part of both public offices and their clients (Coursey and Norris 2008).
3. **Participation.** Last but not least, information and communication technologies not only open the bureaucratic structures for citizens, but also enable citizens to actively participate in decision-making processes. Using the resources of the administration, they can develop their own tools to control them, are able to react more quickly and competently to abuses, and, as it were, impose positive changes in the operations of the structures. It is not by accident that the majority of watchdog initiatives that have been developing dynamically from the 1990s focus exactly on the control over public administration.

For each of the aspects, many examples of particular solutions can be found. Of course, in the present paper we are not able to present even a sectional view or a sample of the multitude of solutions already functioning all over the world. So we will focus on individual, selected cases that can show both the advantages and the limitations of the mechanisms introduced within open government in order to better control corruption.

Open Data—Higher Transparency and Better Organisation of Work in Public Administration

Higher transparency and better organisation of work in public administration can be achieved using ICT and proactively supplying citizens with as much information as possible. In a basic sense, it means a broad access to information for citizens, but also within bureaucratic structures and among those who have political supervision over them, without any unnecessary limitations. Thus, in practice all these actors should not only have the right to access information, but also should be able to use the right in a possibly easy and simple way—immediately, through web pages, without any applications, asking, declarations, etc. Secondly, which is specifically related to the use of ICT, the data should be made available in a manner that makes their reading, processing and analysing possibly easy (a comprehensive description

of open data standard can be found at <http://opendefinition.org/>, see also Izdebski 2015), and this aspect is particularly important for counteracting corruption. So the key requirement is to use the so-called open data formats.

For example, in Poland since 2001 a broad system of publication of data on the functioning of public agencies has been in place, concerning in particular central and local government administration—the Bulletin of Public Information. A lot of information that can be obtained from the system includes financial disclosures filed by several hundred thousand public officers, mostly of municipal level. Analysis of the data or their simple reviewing by interested journalists and citizens often forms a basis for detecting grave abuses in public institution operations. But the problem is that in the Polish system, the disclosures are presented in the form of PDF files or even scans of handwritten, paper documents. So the set of financial disclosures cannot be used both by citizens and even by control agencies (that would be willing to analyse them quickly as to the risk of irregularities) so effectively to limit corruption as it could have been if the financial disclosures were presented in the form of text files or in other formats, such as XML, that are easy to search and aggregate (Makowski 2014).

The problem illustrated by the example of the Polish system for publishing financial disclosures of public officers is relatively common and concerns all kinds of documents that should be made public by administration, such as drafts of legal acts (accompanied by documentation from the legislative process), financial reports, contracts and agreements, registers of benefits, registers of official expenses, etc. The core source of the problem is the fact that even if public administration institutions have their Internet pages where many information on their activities are published, which should of course be seen as absolutely positive development, then from the perspective of promoting transparency and limiting administrative corruption, the process is less effective when the information are disclosed in a manner that makes it hard to use the resources in order to prevent or detect abuses. Using in particular the open data formats and API (Application Programming Interface) protocols makes it easier for the administration themselves and the citizens to get access to information on public offices operations, to search for data and to use them for analytical activities concerning also corruption risks. This is a basic step towards full use of ICT for enhancing transparency and better functioning of public administration, of course in addition to the never-changing call for broadening the catalogue of information that should be made public by public offices. Naturally, the instruments should be properly regulated by law.

Then, further steps can be considered—such as introducing an electronic circulation of documents in public offices, designing special Internet pages or tools that enable interested persons to analyse data by themselves, synchronising—to facilitate simultaneous analysis—of various sets of data (for example, registers of businesses and sets of information on financial disclosures, which could help, e.g. in identifying conflicts of interest or the practice of the so-called revolving door whereby public officers transfer to private sector and back to public administration—factors that always foster or accompany particular cases of administrative corruption).

It should also be remembered that even the most sophisticated set of ICT instruments will not by itself result in limiting administrative corruption. Public administration, control agencies or citizens have to be willing and able to use the tools, and that requires information and education activities. And of course, we must be aware that availability and accessibility of data definitely have potential as an anticorruption tool (Lindstedt and Naurin 2010), but also creates other problems or dilemmas. Just to mention national security and political sensitivity issues of data, intellectual property, trade secrets or the big question of transparency vs. privacy. In particular, this second problem is interesting from the point of view of corruption prevention within the bureaucratic and political structures. Namely the question is, how much data on public servants and their actions should be available to the public in the name of transparency and accountability, and not to interfere their right to privacy. Until now, at least in Europe, it seems that in this respect a prevailing opinion is that any public activity of a persons, such as a public officials or anyone dealing with public funds is an valid argument of limiting the privacy of such persons, just to mention cases of the European Court of Human Rights jurisdiction such as Lingens versus Austria (1986), Oberschlick versus Austria (1991), Thorgierson versus Iceland (1992) or Google versus Gonzales (2014). However, discussing it would require writing another text with more legal approach.

Anyway, an OECD (the Organisation for Economic Co-operation and Development) initiative can be cited here—the Open Data Project. As the main incentive for the initiative, the OECD indicates the very need for greater transparency and accountability of public authorities (<http://www.oecd.org/gov/digital-government/open-government-data.htm>) including in particular administrative structures which produce huge amounts of information on themselves and on the matters they deal with. One of the tools used by OECD to encourage states to open their data, also in the name of combating administrative corruption, is OURData Index created to evaluate the progress of the member states of the organisation in opening their public data (OECD, 2015).

The first edition of OURData Index of 2015 indicated South Korea as the most advanced country in opening public data. The main reason for choosing South Korea was the fact that the country had invested in a comprehensive programme to develop e-government—Government 3.0 (<http://www.moi.go.kr/eng/sub/a03/Government30/screen.do>). The promotional slogan of the policy, Better Governance—Happier Citizens, is a good illustration of a positive attitude towards and determination of the Korean government to use e-tools for improving the quality of public administration operations. As an example of activities implemented under the programme, the UNI-PASS can be cited—the system for electronic customs procedures. It is based on the integrated circulation of documents and managing customs procedures concerning goods, persons and financial transactions going through South Korea. The system made official procedures more transparent and efficient (for example, the average time of customs procedure for exporting goods was reduced from 24 h to 1.5 min, and for imports from two days to 1.5 h and the average time for payment inspections from four days to 10 min)

(Ministry of Government Administration and Home Affairs 2013), significantly reduced the costs of functioning of customs services and limited the risk of corruption in this important area managed by the state (in 2003, the system was awarded the prize of the international organisation Anti-Corruption Agency Forum gathering the countries from Asia and Pacific region, and in 2011 the prize from the World Knowledge Forum). Similar systems, based on the Korean model, were introduced, e.g. in Kazakhstan, Guatemala or Tanzania.

Big Data and Citizens Controlling Public Administration Expenditures. Examples of Initiatives Concerning Public Procurements

Open government and e-government creates interesting opportunities to include citizens in direct control and supervision over public administration. Big data, or the access to and the availability of all source data on the public sector in general, and on the activities of public administration in particular, is of key importance in the process. Public administration has in their disposal huge amounts of information from different fields—on their own operations (e.g. data on employment, salaries, personnel changes, spending, financial disclosures, etc. in public offices), on the society (e.g. data from general censuses), on the economy (e.g. macroeconomic data), registers (e.g. of legal persons, businesses, non-governmental organisations, on the functioning of public procurement market), official statistical data (e.g. data on crime or information on law enforcement agencies). The resources can be used by citizens in creative ways, as shown by examples from countries with free access to such data. Based on them, mobile applications are created (e.g. helping to localise places in the public transport network) and small enterprises and bigger businesses are launched specialising in processing and redistributing public data (e.g. companies supplying analytical tools enabling their users to perform surveys of the area of pieces of land or buildings). In the same way, ICT tools are developed to detect and prevent corruption.

An excellent example of such anticorruption solutions developed by creative citizens who are allowed to use the knowledge gathered by administration are various tools aggregating scattered information on operations of public administration and allowing for identifying corruption risks and undertaking particular activities to counteract or neutralise them. In the recent years before this text was written, a special interest has started to be raised by the field of public procurement. Contracting services and different types of procurements form a very important area of activities of today bureaucratic structures and their agents such as public-owned companies. In most (in particular democratic) countries, public administration (of central and local government level) directly or indirectly (through controlled entities, companies, non-governmental organisations, etc.) redistributes huge amounts of money, either making purchases to meet their own needs or supporting

implementation of their tasks concerning mainly meeting the needs of citizens—e.g. investing in road infrastructure, environmental protection or public services (for example, healthcare, public transport or education).

Worldwide market for public services is really huge. Only in OECD countries it is estimated at average of 13% GDP (OECD, 2013). The value of the European market for public procurements in 2011 was estimated at 2.4 trillion Euros (Cernat and Kutlina-Dimitrova 2015). The high values of contracts (especially for infrastructural investments) and direct contact between the public and private sectors which operate according to different principles (the priority of the former is, or at least should be, obtaining products and services for citizens of possibly best quality for possibly cheapest price, while for the latter—maximum profits and expansion) are natural factors increasing the temptation for abuses—bribery, staging tender procedures, collusions, etc. All the factors are conducive to higher risk of corruption in the sense that we adopted—as a form of particularism. That is why it is this area of public administration activities that is prioritised by international institutions (such as the World Bank, the OECD or the European Union) in connection with combating corruption (The World Bank 2016). So more and more countries introduce various anticorruption initiatives. Most of them have preventive nature and are based exactly on solutions from within the e-government model.

Probably the biggest progress in this field has been achieved in the European Union. Every year in the European Union hundreds of billions of euro are redistributed under the so-called cohesion funds and through the public procurement market. Therefore, European Commission for develops technologies and invests in special projects aimed at using the ICT tools to fight corruption in the area of public procurements (to mention only DAISY or PLUTO systems) (Wensink et al. 2013). One of the most complex and the newest instruments of this type (when this text is written, still functioning in a prototype version) is the ARACHNE system, developed specially to prevent corruption in the biggest European funds, the European Social Fund and the European Regional Development Fund. ARACHNE is an aggregate of databases on projects financed from the above-mentioned funds, information on entities commissioning tasks, proceedings, irregularities detected by the Commission and also external bases (ORBIS and World Compliance) containing detailed information on companies from all over the world. Public officers of the Commission and member states have access to the system. Its main purpose is prevention, and it is based on the concept of the so-called red flags. When a tender procedure is started, the ordering party can check contractors on an ongoing basis—examine their history, past experiences in implementing tasks financed from European funds, reports from external institutions on observing legal regulations and management standards, connections with other companies, persons, political parties, organisations (which is useful in investigating, e.g. price collusions), etc. The analysis is performed by the system automatically by associating data from different sources. Person or persons conducting tender procedure can receive detailed reports on every entity, together with enumerated risk factors, and thus they can react properly still during the tender procedure, e.g. by cancelling the tender or requesting explanations from contractors.

The citizens themselves proved to be very interested in using the data to control expenditures of public administrations. In the period of two or three years before this text is written, in several EU countries (such as Croatia, Hungary, Slovakia, Czech Republic and Poland) civil initiatives have been launched focusing on using data from the public procurement market for controlling public administration. A particularly interesting example of such initiatives forms the Croatian portal *Integrity Observers* (<http://integrityobservers.eu/>). It was created by the local non-governmental organisation *Partnership for Social Development*. The portal is an Internet database that is updated in real time, which enables any interested person to analyse on an ongoing basis announcements on tenders posted on the Internet pages of central or local government institutions. The users of the tool can search for procurements that, e.g. have extremely short deadlines for submitting offers, high tender guarantees or small number of bidders. In this way, individual ordering parties and bidders can be watched, their behaviour on the procurement market can be analysed and entities engaging in risky practices can be picked. The Croatian database is additionally used in other activities of the organisation, which conducts a programme of investigative journalism based on data (<http://www.fairpress.eu/>), under which local journalists examine how public funds are spent by central and local government authorities, and if needed, alarm the general public. Thus in Croatia, based on information on the public procurement market, a whole anticorruption social mini-movement developed for transparency and integrity, to a great extent focused on public administration.

Initiatives similar to the Croatian one were also launched in other European countries. In Hungary, a portal like the Croatian one was created (<http://www.redflags.eu/>), to analyse announcements on public procurements, by two non-governmental organisations: Transparency International Hungary and K-Monitor. Portals having similar functions are also present in Slovakia (<http://www.otvorenezmluvy.sk/>). In Poland, as a result of cooperation between the Stefan Batory Foundation (<http://www.batory.org.pl/>) and the private company Zamówienia 2.0 (<http://www.zamowienia20.pl/>), in 2017 a portal to analyse in real time the risk of abuses for particular procurements will be launched using specially designed statistical tool and data obtained from the national bulletin of public procurement. Also global civil platforms exist to integrate and exchange experiences between different organisations and entities active for greater transparency in public procurements, such as the global initiative the Open Contracting Partnership (<http://www.open-contracting.org/>) or the Eastern European TransparenCEE (<http://transparencee.org/>).

The European Commission sees the potential of the local initiatives and sometimes supports them directly, having in mind that they are also conducive to protection of the interests of the community. They induce national (central and local government) administrations to greater care in spending public money, and thus have preventive role. A good example of such initiative supported by the European Union is the project DigiWhist (<http://digiwhist.eu/>) implemented by a consortium of academic centres and non-governmental organisations in all member states of the EU and selected countries from outside the Union. Under the project, a common indicator (index) of the risk of abuses in public procurements is developed that

should help in identifying threats and performing analyses (including international comparisons). It will also be accompanied by tools enabling citizens in each country to identify risks and conduct watchdog activities by themselves (e.g. in municipalities). In addition, the DigiWhist (in line with its full name—Digital Whistleblower) will be equipped with instruments helping whistleblowing activities in cases of abuses and cooperation with media and law enforcement agencies.

From Weber to Web... Conclusions

The first part of this paper contained a short historical overview of the main developments in the methods of organising bureaucratic structures, aimed also at overcoming their vulnerability to corruption seen as a form of particularism which, in the activities of all bureaucracies, is manifested in discretionary nature of decisions and selective distribution of resources remaining at the disposal of public officers—the access to the bureaucracies themselves or the access to public services administered by them in the name and under direction of their superiors—rulers, politicians or citizens.

The characteristic feature of those historical efforts to harness bureaucratic corruption seems to be first of all the fact that they were usually initiated by the direct superiors of the bureaucracies—the absolutist rulers, and with the progress of democratisation, the elected politicians. The second characteristic was the fact that they were focused mainly on the administration itself. For ages, the main source of the problem was persistently searched for within the administration itself and it was mainly the administration that remained the object of proposed changes—from within. Alternatively, efforts were undertaken to create new forms of purely political control and supervision over administration. These efforts had not been totally futile. The late feudal bureaucracy, based on the system of the trade in official posts, though far from the modern ideal, was undoubtedly better (in terms of the burden of corruption) than its predecessors, based almost entirely on the discretion of rulers and family or clan connections. The civil service systems being introduced from the nineteenth century formed another step forward, as well as the NPM model, transferring to public administration good (but also bad) practices from private bureaucracies. But none of the historical reforms of bureaucracy brought so powerful challenge for the key reason of administrative corruption—the lack of transparency—as the concept of open government. The paradigm has developed dynamically from the late 1990s mainly as a result of its happy marriage with equally rapid progress in the ICT sector. The call for granting citizens an open access to information on the activities of authorities, and in particular the closest to them authority exercised by public officers, together with new technologies opening unprecedented opportunities to disseminate the information, gave rise also to quite new methods for limiting the ancient problem of administrative corruption.

Of course, the new technologies are also used by the administration itself to develop new management tools and exercise internal control. But from our

perspective, the most important development is the fact that ICT and the opening of public data resources break the monopoly of bureaucracies for information on themselves and for the knowledge gathered by bureaucracies, as well as the monopoly of politicians for exercising supervision over bureaucracies. The solutions under Big Data and Open Data concepts, impossible without the help of the new technologies, enable citizens to become at least to some extent experts on public administration and the areas of its concern as the public officers themselves.

If they only wish so, citizens can associate, or support watchdog or think tank organisations and groups in gathering the data, analyse them, use them to develop tools to prevent and counteract corruption (Internet portals, applications for smart phones, software, etc.). Such a movement probably never will be massive. However, already the difference is visible. As Croatian, Polish or US examples show, there are numerous civic organisations engaging people via ICT in monitoring and oversighting public administration (Vila 2013). Maybe we will never have in this area something as SETI (Search for extraterrestrial intelligence) or PlanetHunters in astronomy—really grass-root, participatory projects driven by new technologies. However, use of ICT tools to counteract and prevent corruption by citizens is already global, what is proved by such initiatives as DigiWhist or OpenContracting. And let us hope it will be more popular in the future.

As put by Sir Francis Bacon, *scientia potentia est* (knowledge is power). Equipped with the access to knowledge, citizens or political supervisors of bureaucratic structures gain, maybe diffused, but nevertheless the greatest power to induce the bureaucratic structures to act rightly, lawfully and effectively. They can also induce decision-makers to introduce reforms of public administration. And although so far, as shown by the research cited earlier in this paper, the correlation between the growth of ICT and the capabilities to limit administrative corruption still remain not too strong and depend on many cultural and political factors, it is nevertheless detectable both by researchers and by citizens of many countries in their everyday life experience. And the growing numbers of local initiatives enabling citizens to control bureaucracies should form a sufficient basis for a strongly supported thesis that in the future the use of the very solutions to a great extent will let us limit the problem of corruption in this area of public life. Let us give ICT and open government a chance.

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Public Services Reengineering Through Cost Analysis and Simulation: The eGOVSIM II Platform

Yannis Charalabidis, Petros Stamoulis and Aggeliki Androutsopoulou

Abstract Formal methods for measuring the impact of transformation of public services to digital transactions is an important research challenge in the non-bureaucratic government. The eGOVSIM II toolset is a prototype Web-based application aiming to provide administrations with a methodology and an information system to calculate the gains from automating and delivering interoperable services for citizens and businesses. The chapter presents the eGOVSIM II platform, which has been developed on the basis of the eGOVSIM analytical cost calculation and simulation model. It is based on the SCM and ABC methods and has extensive capabilities in capturing and measuring the various cost elements of governmental services, calculating both the cost for the administrations and the citizens or enterprises, in different levels and scenarios of automation. The eGOVSIM II platform facilitates the definition of several service provision scenarios, allowing the calculation of time, effort, and cost elements of each scenario. The chapter provides a full view of the publicly available system and its functionalities, by showcasing an application scenario testing the reengineering of public services in a Greek Public Sector organization. Results from this application and different scenarios executed in the past are showcased to provide a view on the applicability and overall value of the approach. Finally, lessons learned and future research directions for cost estimation are described.

Y. Charalabidis (✉) · P. Stamoulis · A. Androutsopoulou
Department of Information and Communication Systems Engineering,
University of the Aegean, Samos, Greece
e-mail: yannisx@aegean.gr

P. Stamoulis
e-mail: icsdm14044@icsd.aegean.gr

A. Androutsopoulou
e-mail: ag.andr@aegean.gr

Introduction

One of the major challenges of the digital age is the restructuring and transformation of the public sector. In the quest of modernization of public administrations, traditional bureaucratic organizational structures tend to be eliminated by eGovernment projects.

Over the last years, the way governmental services are provided to citizens and businesses has radically changed. The reduction in administrative cost through the use of Information and Communication Technology (ICT) is evident (European Union 2014; EC 2012), as politicians realize the high costs of administration in service provision, but also the immense potential of information technology to contribute to a more efficient administration. However, it is still a matter of research whether a novel non-bureaucratic governance model, where citizens and business can be self-served by fully automated electronic services, can be sustainable (Paulin 2014). Another research stream suggests that old notions of “governance by bureaus” (Downs 1967) should be evolved and complemented by technology artefacts as proposed by Bartels (2009). At the same time, there is an increasing need for cost-efficient solutions in the provision of public services due to the economic crisis and the fiscal constraints it has imposed to governments. During the previous years, the adoption of ICT-based solutions as means to reduce administrative burden was in the core of national initiatives and strategies in many countries constituting fundamental political objective (OECD 2007). Hence, to achieve reasonable administrative burden decline, it is essential for public sector organizations to obtain a comprehensive view on the full cost of the services they provide, as recommended by the Government Finance Officers Association (GFOA 2002). Therefore, governments need to capture the accurate and detailed costs when delivering a distinct service unit and associate them with specific activity data. This should include all direct and indirect expenses within the work unit and as well shared costs outside the work unit. Building on this knowledge, they can justify their strategies for enhancing public service provision. However, there is a lack of a systematic way for measuring the cost of governmental services and assessing how it can be offered more efficiently.

In parallel with service digitization and administrative cost reduction efforts, interoperability is recognized as a key enabler for raising the productivity of the public sector both from an organizational and from a technology point of view (Guijarro 2007; Schrage 2009; EC 2010; IDABC 2009), going beyond the introduction of digital services (Scholl 2005; Charalabidis et al. 2009). Interoperability contributes in eliminating intermediary agents and operations, and thus addresses bureaucracy weaknesses and leads to cost savings. The financial gains from the transformation to full interoperable services, cross-organizational collaboration and automated system communication is bringing, have been recognized at European level both in governments and in the private sector (EC 2015, 2008).

eGOVSIM II, which is presented in the current chapter, addresses the lack of a methodology and user-friendly toolkit for assessing the impact of governmental service transformation based on digitization and integration of interoperable

services and forecasting the overall administrative gains. It aims to provide to public administrations and policy makers a decision support tool for process reengineering through the evaluation of different scenarios.

The chapter is organized in six sections. The next section presents existing methods for calculating the cost of services and cost elements for the administration and the service consumers. Then, the main elements of the eGOVSIM II approach are presented in Section “[The eGOVSIM II Web Platform Functional Architecture](#)”, describing the various capabilities of the ICT platform that has been developed to enable this approach. An application scenario of the model on the Greek Public Sector is presented in Section “[Application Scenario in the Greek Public Sector](#)”, followed by its results in Section “[Application Results](#)”. Finally, conclusions and further research directions are presented in Section “[Conclusions](#)”.

Theoretical Background

Various techniques are used by governments and private organizations to appraise and compare the costs and benefits in terms of labor, time, and monetary savings of alternative decisions. Cost–benefit analysis (CBA) and cost–effectiveness analysis (CEA) are of the most known systematic processes for monetizing the impact of policy interventions (Riegg and Edwin 2015; Treasury 2014). However, the key challenge that falls into existing models and practices is the quantification of the administrative burden (Alabanos and Theodoropoulos 2016; OECD 2011; EU 2014).

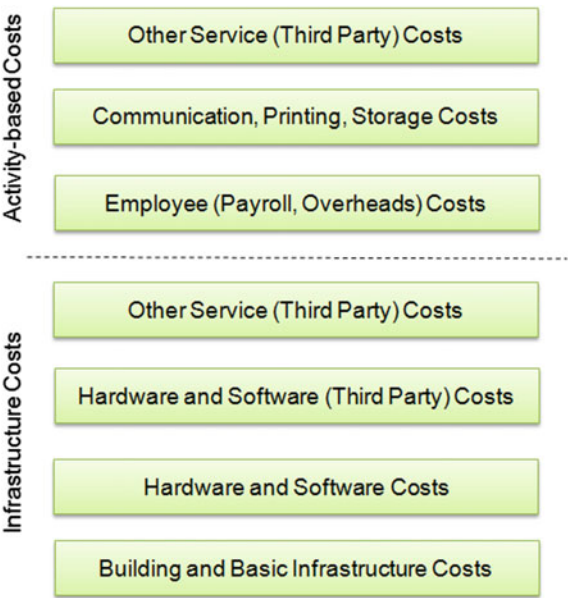
When narrowing down on cost analysis methods on service provision, two main approaches can be distinguished. The first one is the activity-based costing (ABC) approach, which provides the means for calculating the various cost elements per unit for work for different groups (Cooper and Kaplan 1992; Kaplan and Cooper 1997; Lu and Zhang 2003; Chung and Khan 2007; Brown et al. 1999; Weiss 1997). It is defined as “an accounting method that identifies, describes, assigns costs to, and otherwise details the activities of an organizational unit” (Kehoe et al. 1995). The term activity implies an operation of an agency requiring resources in order to solve a specific problem or accomplish a specific objective. ABC differs from the traditional accounting methods (Jackson and Lapsley 2003), since it relies on the principal that by controlling the performing activities, an organization can control the consumption of resources (CIMA 2001). The method has been applied in USA in order to provide a comparison on costs between in-house governmental services provision or contracting out, as a means for cost savings by state governments (Young 2005). Furthermore, findings from its implementation in the private sector have been studied by Rong-Ruey et al. (2009), Fogelholm and Bescherer (2006), Searcy (2004), while Askarany and Yazdifar (2007) focus on the barriers for the adoption of ABC, such as lack of suitable supporting software and the costs for the setup and maintenance of it.

The second approach, called Standard Cost Model (SCM) is the most widely applied method for measuring the administrative burden in terms of requirements for providing and processing the specific information needs per service. The international working group has proposed a framework utilizing SCM determining the administrative burdens of businesses (2004). Based on the SCM, European Commission has developed a European administrative cost model (EU SCM), which includes a wider range of groups to which information requirements apply, including companies, the voluntary sector, the public authorities, and members of the public (EC 2007). EU SCM is supported by an ICT tool, the so-called The Administrative Burden Calculator, which is accessible to all European Commission officials via a Web interface, encompassing predefined options and capabilities of exporting and sharing impact assessment results. The Scottish Government has piloted SCM in a case study aiming to appraise administrative burden changes in the Scotland’s Environmental and Rural Services (Scottish Government Social Research 2010).

Moreover, hybrid analytical approaches (Hadziliadis 2005; Audrey and Irvine 2003) can be found in the literature. Such approaches combined with the business process modeling used for the decomposition of services into discrete steps and processes can help the restructuring of an organization processes in order to accommodate customers’ requests more efficiently (Becker et al. 2008; OMG 2006).

In an effort to analyze the various cost elements of governmental services toward citizens and businesses, the following cost factors around the service (Fig. 1) are identified (Charalabidis and Askounis 2010): (a) infrastructure costs, pertaining to

Fig. 1 Cost categories in public service provision (Charalabidis and Askounis 2010)



the administration and usually being irrelevant of the actual service demand and provision (e.g., buildings rental, and hardware and software infrastructures); (b) activity-related costs that can be directly attributed to service provision, such as the personnel cost for the needed officials' effort, as well as communication, printing and storage, or other third-party costs. Most common approaches tend to count only the activity-related costs (EC 2006) that are relevant to administration costs; however, citizens or businesses also spend effort in filling-in forms, waiting in person in front office waiting lines, bearing costs for communicating through telephones or facsimile devices, or paying intermediaries for service-specific tasks.

The eGOVSIM model (Charalabidis and Askounis 2010) attempts to fill this gap, by suggesting a methodology for systematically calculating the unit and overall cost, both for the administration-provider and for the citizen or business-consumer, for each service, based on the simulation of several user-customizable scenarios for each service (from manual process steps to full automated service delivery). Therefore, the eGOVSIM methodology follows the principles and practices analyzed before, i.e., the ABC approach for the calculation of cost element per each of the aforementioned groups and service step, the SCM for the estimation of processing and information needs per service, and finally the BPM for the decomposition of each service and formal description of its process.

The eGOVSIM II Web Platform Functional Architecture

The proposed Web platform is an extension of the eGOVSIM model initially introduced by Charalabidis and Askounis (2010). This model suggests a methodology for calculating the unit and overall cost, taking as input static parameters both of unitary administration costs (e.g., average employee cost per unit of time and per organization type, and printing cost per unit) and of unitary citizen/business costs (e.g., average cost of waiting or processing time, communication costs). Furthermore, based on the BPM results, it includes information on the various process steps of the services and the execution demand in units of effort, time, and other costs implied by the SCM (communication needs, printing, error handling) per process step. To estimate the overall financial gains of each scenario, the model considers the overall annual demand of the modeled service based either on historical data from the previous periods or on predictions for the upcoming period. Finally, in order to execute different transformation scenarios using analytical simulation methods with the aim of evaluating the financial gains, the "participation percentage" parameter is needed, in terms of determining the automation level of each execution flow. For example, on a manual certificate issuing scenario the step "Processing by administration employee" will have a 100% penetration percentage, while on a scenario of almost full automation it might have a participation of 10%.

The eGOVSIM model processes the above input through an iterative calculation process for each service, service step, and cost need for administrations or citizens

and businesses. For instance, for the estimation of the overall annual cost for the Service Scenario- l under the Scenario- lk , is given by the formula (1):

$$OAC_{lk} = ADI * \sum_{j=1}^p PSP_{jkl} * \left[\sum_{i=1}^q (ACN_{ijl} * AUC_i) + \sum_{g=1}^r (CCN_{gjl} * CUC_g) \right] \quad (1)$$

In formula (1), ADI refers to the overall annual or estimated demand of Service- l and PSP_{jkl} the penetration of ServiceStep- j in Scenario- k for Service- l , while ACN_{ijl} represents an administration cost need for a ServiceStep- j of Service- l , AUC_i the administration unitary cost, CCN_{gjl} a citizen cost need for a ServiceStep- j of Service- l , and CUC_g the citizen unitary cost. The generated results concern various levels of abstraction both at the micro-level and at the macro-level per each analyzed service. Thus, the results may refer on the overall mean cost for the provision of the service for the administration or the citizen/business, on the overall yield time per service scenario, or on the total annual costs per service and the comparative financial gains for each transformation scenario per phase, step, or stakeholder. Detailed information on the eGOVSIM Model Algorithmic Structure and the calculations executed at various levels are presented in Charalabidis and Askounis (2010).

Before proceeding to the analysis of the Web application components supporting the eGOVSIM model, it is considered significant to have a quick overview of the basic entities involved in the eGOVSIM II platform architecture and process model. In order to extract accurate data from the application, the user has to follow a specific workflow. In each of its steps, the insertion of specific data is required to proceed to the next one.

The first entity to be inserted is the public sector who runs the process that is due to be analyzed. Afterward, the process is divided into phases that should be clearly described by the user. So, for each process, the user tries to identify all the individual steps involved and associate them in groups of steps that need to be taken for the process to be completed. To complete each phase, the system expects that all steps involved are inserted.

Apart from the above entities depending on the personal interest of each user, there is a group of common entities for every scenario analysis. These entities are related with common used costs regardless the scenario. In order for the system to have the maximum analysis, all the costs are associated with types and groups. Figure 2 shows the relations between the entities of the application and the steps the user has to follow in order to complete the analysis and obtain simulation results.

The five distinct areas in the application are going to be described in the following subsections.

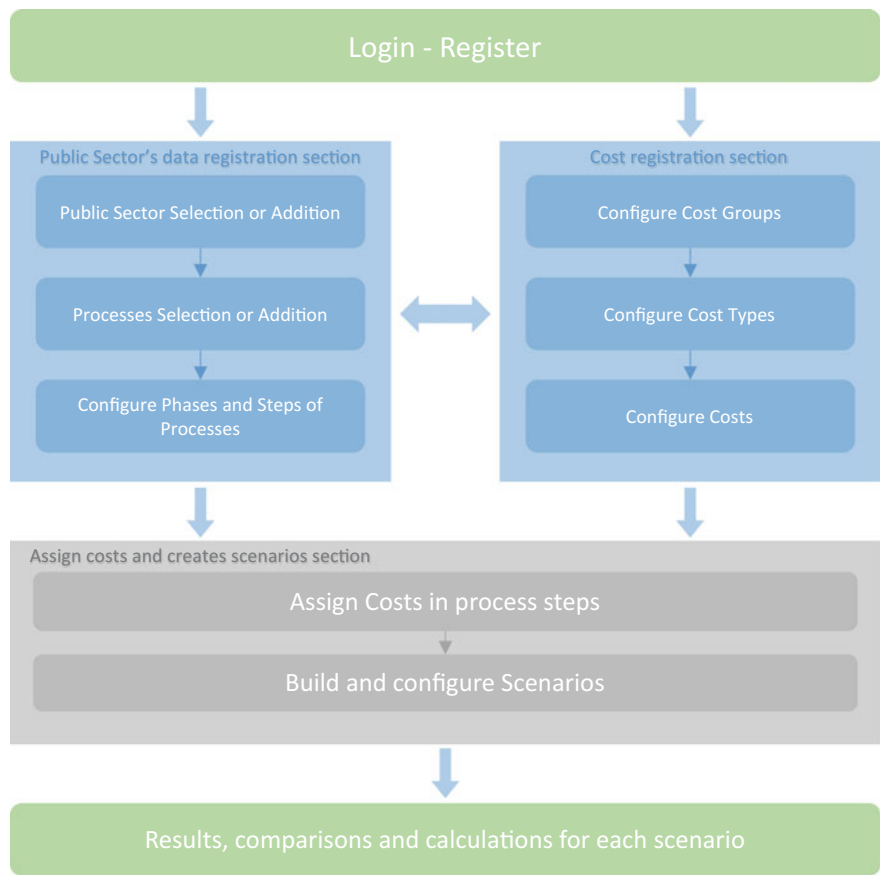


Fig. 2 eGOVSIM II platform architecture

Login—Register Section

The first action that the user must carry out in order to be able to use the application is to register, by typing a valid e-mail address as well as a password. The system completes the necessary checks about the e-mail syntax and the strength of the password. Afterward, the user is able to login and the system activates three additional options in the main menu, including data entry capabilities and options concerning calculations and results. Figure 3 shows the main page of the application immediately after a successful login. Home page also provides information related to the application, including historical references and usage statistics.

It was considered appropriate for the application not to disclose more information to unauthorized users. Besides, it is an application that is addressed to administrators of public sectors and not to the general public.

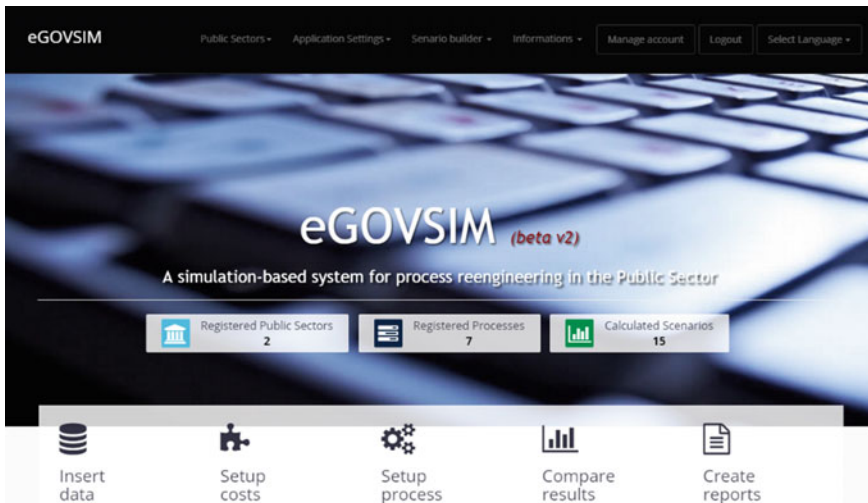


Fig. 3 Main page of the eGOVSIM II platform

Public Sector's Data Registration Section

This section involves three individual steps. The first step concerns the public sector's data, where user inserts all the information about the public sector, e.g., public sector's name, administrator name, and address. The next step refers to the data of the process to be analyzed. There, the user has to link the process to a public sector by selecting the latter from a drop-down list. The third step has to do with the phases of the process. A phase is a group of distinct steps in the process such as "information gathering" or "service execution." The user inserts the steps of every phase. It is mandatory to link the phase with the process of the public sector. In order for the user to have as much accurate analysis as he can, steps must reflect clearly the functionality of the phase. After this section, the user can proceed to the analysis of the process or to the setup of the costs.

Cost Registration Section

In order for the system to analyze the processes and export the results, the values of each cost that is going to be used in each scenario are required. On this section, the user is going to check whether all the necessary costs are available on the application. Every process' step is connected with several costs. It is important before the analysis, all these costs to have been inserted and associated correctly. This section also has three steps. On the first step, the user inserts or configures the cost groups,

which relate all the costs that are going to participate to the analysis. For example, if the process has to do with a birth certificate, the cost groups are the citizens and the public sector. On the second step, the user inserts or configures all the distinct types of costs he is going to use. The types mostly have to do with time, money, paper, storage, etc. and must be descriptive enough. With the maximum cost analysis, the results are going to be more realistic. After the completion of the first two steps, it is time for the user to insert the cost values. For each cost, the user inserts the proper range of possible values and associates the cost with one of the previously inserted types and cost groups. This section probably is going to be skipped from the common users, because all the mandatory cost data for their analysis is going to be already inserted to the application by the administrators. However, if the user wants to add and use his own cost values, he is free to do so. The delete function is only available for the administrators of the application, in order to ensure the functionality of the application.

Assign Costs and Create Scenarios Section

At this section, the user sets up the connections needed for the scenarios, as well as he creates the usage scenarios for the public sector's process. Each process' step has to be linked with all involved costs. In order for the user to complete this, it is advisable to previously record all the different connections, in order to effectively insert them to the system. By following the instructions, the user selects a process of the public sector, a group of cost, and a phase, and then for all the associated steps of the selected phase, he adds one by one the cost types with their values. On the same section, the user adds the percentage of possible error during each step completion and the cost value of this error. At the end of this procedure, the system can compute the exact amount of cost for the step, as well as the error cost for it. The ultimate objective of these insertions is to inform the system with all the data needed for the scenario's build procedure. The system offers the ability to create multiple scenarios for each public sector's process. The idea of this feature is to allow the user to compare the total cost of a process and the individual costs of the phases and steps involved in every scenario. For each scenario, he has to select which steps of each phase are involved. Furthermore, for each selected step, he has to determine the presence of its participation to the scenario. Same steps with different percentages produce different results.

Export Data Section

The Web application now has all the information needed to carry out calculations and export results, according to the user scenarios. The results are presented in the forms of charts and tables. There are two types of charts in the application; the

charts related to each scenario individually and the ones that show comparisons between different scenarios. The first chart of the process presents the phases of the process that complete the scenario. The y-axis represents the cost units. The usage of the cost unit mostly enables a comparison between the phases and less a cost calculation in total. The comparison between scenarios' charts gives the user the ability to select up to two scenarios and compare each other in order to show the benefit of the difference of the two scenarios that have been selected. Furthermore, the user is able to export comparative table of data between scenarios for each phase and its steps. The user simply inserts the number of the days he wants to calculate and the number of the processes completed on every day, and the system exports a table with all the calculated costs for each scenario.

Application Scenario in the Greek Public Sector

Using as an example the pilot application of the eGOVSIM II platform in a case of restructuring procedures in an organizational unit of a Greek University, the actual usage of the tool is elaborated in this section. The implementation took place in collaboration with the Research Committee of the Aristotle University and involved in total six processes. An overview of the application process is provided in Fig. 4 including the respective interfaces of the platform, while the detailed steps and data are described in the following paragraphs.

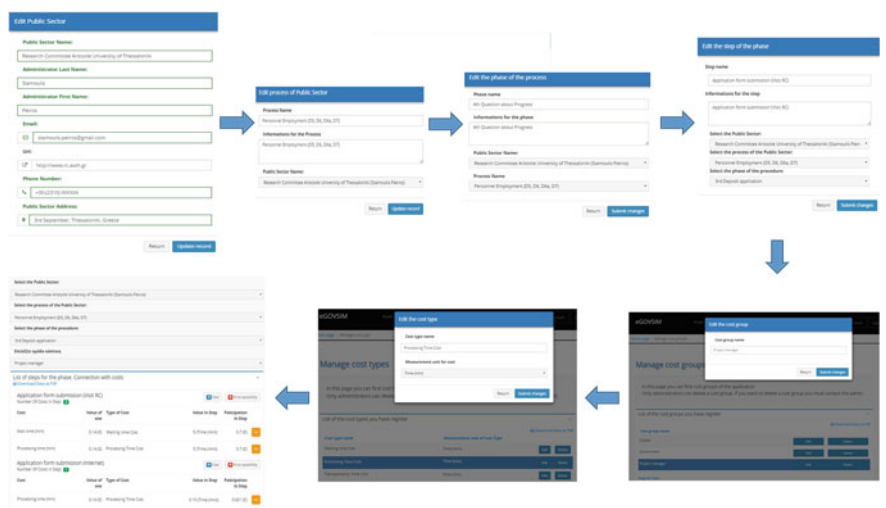


Fig. 4 Pilot application process

Public Sector Registration

In the first step, the public sector's registration should be successfully completed. If the user selects from the main menu the Public Sectors Administration option, he has the ability to view a page with the sectors he has entered and edit them. The purpose of this page is to provide information about the registered sectors and to give the ability to print the relevant list.

The user has the ability to change any value from the ones that appear in the form of this page. The user is also able to view additional information for this sector or delete the public sector from the database. The deletion can only occur only if no additional information is recorded for this sector. A total deletion of the public sector, along with all additional data linked to it, can be exclusively performed by the system administrator.

Public Sector Process

The next step is to insert the processes of the just registered sector. Although we mentioned that our scenario includes six processes, here we will only refer to one, for the sake of brevity. In the "Edit process of Public Sector" form, the user types the name of the process. In this case, the name is "Personnel Employment" and concerns the recruitment of human resources for the needs of the research programs in the university. What follows is the description of this process. Before completing the process registration, it is highly important to properly link the process to the sector. After this registration, the user can be easily transferred to the management page, where he can search for registered processes and print them. Moreover, from the same page, he is able to edit the data of a listed process, as well as delete processes that he no longer wants. Here, it has to be reminded that no deletion of a process can be performed, if there are phases or steps linked to it.

Phases of the Public Sector Process

The process inserted by the user is further analyzed into discrete phases. These phases, as mentioned in the previous paragraphs, in fact group the steps of the process according to their nature. The user inserts the required data in the relevant form and is notified to make the right connection of the phase with the process and the sector. The system performs data filtering to the process, depending on the chosen sector. Additionally, the system temporarily records every choice the user makes on sector, process, phase, etc. and uses it to the next pages he visits, until the latter makes a different choice. The process under study is analyzed into 6 different phases concern the following: (1) information, (2) completion of application form,

(3) submission of application, (4) question about progress, (5) application processing, and (6) response to request.

Steps of the Public Sector Process Phases

The last step to complete is to record the steps involved in each phase. The steps will ultimately be linked with the costs on which the scenarios' calculations will be based on. The procedure of steps' registration is similar to the ones described previously. Through a drop-down list, the user selects the sector related to the step, and for each selection, the system filters the associated data in terms of processes and phases.

In the process under investigation, the identified steps of each phase are listed in Table 1:

Table 1 Listing of steps per process phase

Phase	Step
Information about the process	Information (information through a visit to the organization)
	Information (information through phone call)
	Information (information through Web site)
Completion of application form	Application form filling (through a visit to the organization)
	Application form filling (from his own office)
	Application form filling (through Web site)
Submission of application	Application form submission (through a visit to the organization)
	Application form submission (through Web site)
Questions about progress	Question about the processing (through a visit to the organization)
	Question about the processing (through phone call)
	Question about the processing (through Web site)
Application processing	Personnel Employment submission (from the employees of the organization)
	Personnel Employment submission (from the system)
	Acceptance from the committee (through a meeting of the committee)
	Acceptance from the committee (through a system of electronic voting)
Response to request	Response to request (through a visit to the organization)
	Response to request (through phone call)
	Response to request (through Web site)

Cost Groups and Type of Costs

Apart from registering data that strictly concern the sectors, in order to obtain significant results, a number of parameter values have to be additionally inserted to the application. One of the parameters is the cost group. When referring to the cost of one step and consequently of a process, we have to mention the groups of people to which that cost relates. Thus, a process can involve one, two, or more cost groups. The cost groups in our case are the administrator of the research program and the public sector. The more accurate is the number of the groups to which the cost of a process is allocated, the more accurate the results from the scenario's analysis will be. The cost groups are not directly linked to their sectors, and thus, the user has the ability to choose from an existing group rather than registering a new one. Another parameter to be defined is the type of costs; each step of the process has a set of cost types, which are necessary for the scenario's analysis. The most common cost types are already inserted to the system by the administrator, without depriving the user from the ability to enter new types. Table 2 lists the types of costs used in the pilot application of the tool.

Cost for Steps

After the registration of groups and types of costs, the user enters the cost values of the steps. For every cost, three values are inserted: the cost of a cost unit in euros, the minimum and maximum value that each cost can take during one step. An example is the waiting cost. This cost belongs to the cost group "administrator of research program" and to the cost type "waiting time cost," which is measured in minutes. The cost of one minute of the administrator's time is translated in euros. Table 3 shows the costs of steps for the specific process:

Association between costs and steps: At this point, the user is ready to link the costs to the steps. Selecting the "+Cost" button the user is led to the form from where he can choose a cost and enter the value this cost has during the step. For

Table 2 Cost types and units

Cost type name	Measurement unit
Waiting time cost	Time (min)
Processing time cost	Time (min)
Transportation time cost	Time (min)
Transportation cost	Euro €
Communications cost	Euro €
Printing cost	Pages
Storage cost—maintenance	Pages
Photocopy cost	Pages
Communications cost (units)	telecommunication units
Storage cost—maintenance	MB (megabytes)

Table 3 Cost value registration example in the cost type “waiting time cost”

Cost name	Cost group	Cost type	Measurement unit of cost type	Cost value of one (€)
Wait time (min)	Project manager	Waiting time cost	Time (min)	0.14
Processing time (min)		Processing time cost	Time (min)	0.14
Print (pages)		Printing cost	Pages	0.06
Cost of photocopies (pages)		Photocopy cost	Pages	0.06
Communications costs (units)		Communications cost	Euro	0.03
Storage cost—maintenance (MB)		Storage cost—maintenance	MB (megabytes)	0.01
Wait time (min)	Organization	Waiting time cost	Time (min)	0.29
Transportation cost (€)		Transportation cost	Euro	1
Processing time (min)		Processing time cost	Time (min)	0.29
Print (pages)		Printing cost	Pages	0.01
Storage cost—maintenance (pg X months)		Storage cost—maintenance	Pages	0.01
Acceptance by RC (min)		Waiting time cost	Time (min)	0.29
Storage cost—maintenance (MB)		Storage cost—maintenance	MB (megabytes)	0.01
Cost of photocopies (pages)		Photocopy cost	Pages	0.02
Print for RC (pages)		Printing cost	Pages	0.02

example, if the cost concerns the waiting time, then the cost value for the step is the number of waiting minutes. Additionally to the cost value, the user has to insert the value of the error possibility. Here, the user is asked to insert the cost of an error unit in euro and the cost of an error in minutes. He also needs to insert percentage of the error possibility after 100 iterations of the step.

For the step that the user selected to analyze, the system comes to a result of how much a single execution of this step will cost. The system also calculates for the same step how much the possibility of error will cost and performs controls to prevent double insertion of the same cost.

Simulation Scenarios Execution

The ultimate objective of registering all data described up to this point is to prepare the system, by inserting all the necessary information, for the user to start building different scenarios for a process completion and compare their costs.

Connect phases and steps to scenario : Mixed usage scenario

1st Information Sum of Percentage for participated steps: 70%

Step Name	Participation of step in scenario	Percentage of participation
Information (Visit RC)	YES Participation in scenario	15
Information (phonecall)	YES Participation in scenario	35
Information (Internet)	YES Participation in scenario	20

2nd Complete application form Sum of Percentage for participated steps: 100%

Step Name	Participation of step in scenario	Percentage of participation
Application form filling (Visit RC)	YES Participation in scenario	50
Application form filling (by office)	YES Participation in scenario	40
Application form filling (Internet)	YES Participation in scenario	10

3rd Deposit application Sum of Percentage for participated steps: 100%

4th Question about Progress Sum of Percentage for participated steps: 50%

5th Application Processing Sum of Percentage for participated steps: 100%

6th Response to request Sum of Percentage for participated steps: 100%

[Return](#) [Submit Changes](#)

Fig. 5 Scenario definition

After registering the scenario information, the system transfers him to the corresponding management page. The user can search and print the list of scenarios for a certain process, or edit a particular scenario (by selecting the edit button). Additionally, by selecting the “edit phases and steps” button, is transferred to the page shown below (Fig. 5), that allows linking the steps of a phase to the scenario.

The user here is asked to select for the specific scenario, which steps of the process are involved and to what percentage. For instance, in a scenario where the citizen is visiting a public service to obtain information about a procedure, the participation in the scenario of the step “Visit” should be enabled and the percentage of the citizens that choose the step “Visit” in order to be informed should also be defined. If a step is not involved to the scenario, the user leaves the participation button disabled. The sum of all percentages in each phase should not exceed one hundred percent.

Application Results

After completing all necessary information to carry out calculations, eGOVSIM II platform exports and displays results for as many as the scenarios has the user defined. Two types of charts are available in the application: ones that concern the process completion individually for each scenario and those that visualize comparisons between scenarios. After selecting the sector and process, a user views the list of available scenarios in order to choose the one to be displayed. Then, the system performs calculations (as described in Section “The eGOVSIM II Web Platform Functional Architecture”) and outputs the results. The process of calculation is performed each time the user makes a choice, given that at any point he has the ability to change the data.

The results’ page shows the two charts that concern the process. The first chart depicts the process divided into the phases of implementation with their costs as depicted in Fig. 6. To obtain a finer display, the chart is also analyzed in the lower

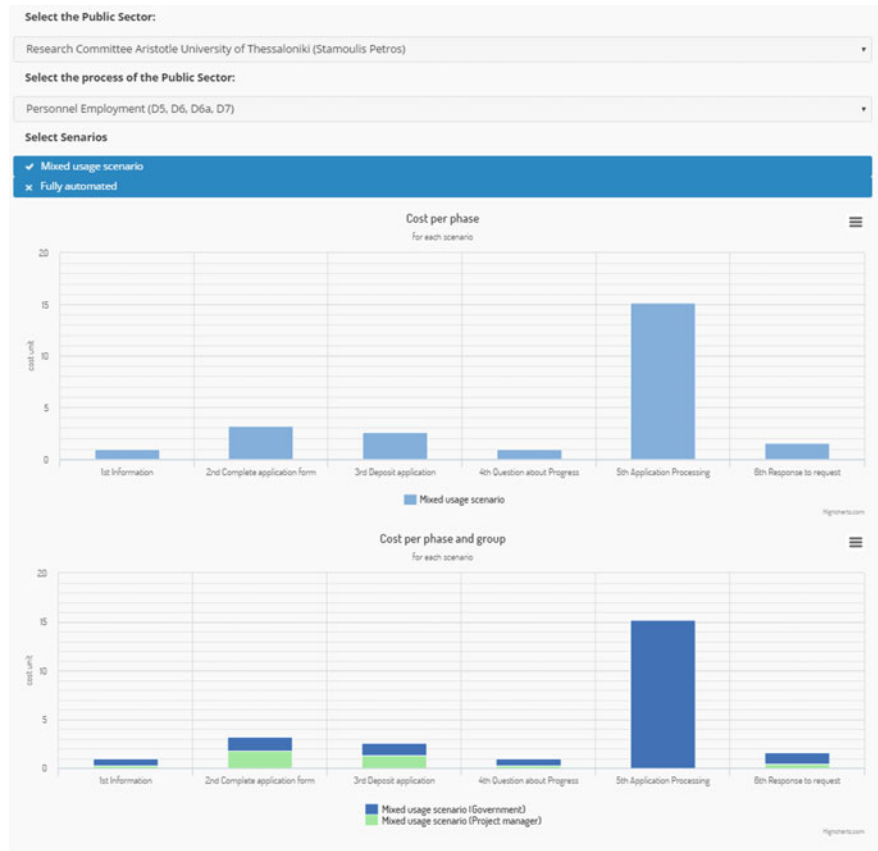


Fig. 6 Scenario results

part of the figure in the cost groups that are involved in the process. In this way, the user can compare the cost units of a phase to the cost units of another, in terms of cost groups, and to draw conclusions regarding the cost of the phase for each cost group.

In our case, the fifth phase referring to the application processing, which involves decision-making tasks of the organization committee, requires the most cost units. This leads us to believe that this phase should be studied in greater depth in order to propose solutions to reduce the execution time of steps. Of course, this step, in the study of the mixed scenario, requires the physical presence of all members of the committee in a specific place at a specific time, which inevitably adds delay time to the process.

As previously mentioned, there is another type of charts that enable the user to view comparative results between alternative scenarios, illustrated in the Fig. 7. These charts intend to show the benefit of the difference between two scenarios that have been selected, so the counting unit is the benefit rate between the scenarios.



Fig. 7 Comparative scenario results

The first chart shows the phases of the process with the benefit rate by moving from the most expensive scenario to the cheaper one. For instance if a phase costs accounts 100 € and the benefit is 75%, then the new cost will be $100 - 75 = 25$ €. In the second chart, there is a greater analysis of this cost in the cost groups. Through this analysis, the user can clarify which percentage of the previously mentioned benefit of 75% concerns each group. Based on these results, decisions for redesigning the process can be made.

In this comparative chart, the fifth phase is led to a cost reduction of 50% for the decisions-making part. The most cost-effective scenario involves the use of an e-voting application to the process. Taking this into account could lead to the redesign of this part of the process by the organization’s committee.

Apart from the presentation of results in cost units, the system exports the comparative results in detailed cost tables, where real costs are expressed in monetary values. The user is able to insert the number of processes assumed as being completed within a day, as well as the number of days that he wants to include to the calculations. For instance, if we have a process that is being completed 3 times a day and we want to calculate its cost for a week, then we just have to insert the number of repetition times (3) and the number of days (5). The produced table depicts the total cost of each phase, as well as the cost of each individual step. This table can be printed and/or exported in pdf format.

Cost of process for all steps			
Download Data as Pdf			
Phase	Step	Mixed usage scenario	Fully automated
1st Information	Information (Visit RC)	\$4.95	
1st Information	Information (phonecall)	\$9.75	
1st Information	Information (Internet)		\$0.15
Phase Sums:		\$14.70	\$0.15
2nd Complete application form	Application form filling (Visit RC)	\$37.65	
2nd Complete application form	Application form filling (by office)	\$9.15	
2nd Complete application form	Application form filling (Internet)	\$1.05	\$10.50
Phase Sums:		\$47.85	\$10.50
3rd Deposit application	Application form submission (Visit RC)	\$38.55	
3rd Deposit application	Application form submission (Internet)		\$0.30
Phase Sums:		\$38.55	\$0.30
4th Question about Progress	Question about the processing (Visit RC)	\$6.45	
4th Question about Progress	Question about the processing (phonecall)	\$8.40	
4th Question about Progress	Question about the processing (Internet)		\$0.15
Phase Sums:		\$14.85	\$0.15
5th Application Processing	Personnel Employment submission (office)	\$9.90	
5th Application Processing	Personnel Employment submission (Internet)		
5th Application Processing	Acceptance from the committee (meeting)	\$217.50	
5th Application Processing	Acceptance from the committee (electronically)		\$113.10
Phase Sums:		\$227.40	\$113.10
6th Response to request	Response to request (Visit RC)	\$9.60	
6th Response to request	Response to request (phoneCall)	\$14.10	
6th Response to request	Response to request (Internet)		\$0.30
Phase Sums:		\$23.70	\$0.30
Global Sums:		\$367.05	\$124.50

Fig. 8 Analytical costs presentation

The results of 2 scenarios of a process running 3 times a day for a week are shown in Fig. 8. We observe that the second scenario has a benefit of 66%, which in this case corresponds to 242.55 €.

Conclusions

In the context of government informatization, public administrations are in a process of transformation of the public services they offer through digitization, automation, and interoperability. However, the potential of ICT in restructuring the public domain should be assessed, sustaining the elements that advance societies beyond the bureaucratic governance.

The eGOVSIM II platform described in this chapter aims to address the lack of structured cost analysis tools to enable public agencies making consistent cost comparisons and take informed decisions related to service delivery. The proposed approach relies on a systematic method for the determination of total costs associated with a public service and is capable of generating results related with the financial gains for user-defined transformation scenarios of a process, decomposed into gains per phase or step, for administration, citizen, or business. The tool can be used by administrators as decision support tool in an effort to simulate and forecast the impact of various what-if scenarios of process reengineering.

The underlying eGOVSIM model has been initially applied and validated on 10 of the most common Greek governmental services, based on the public administration annual data (Family Status Certificate, Birth Certificate, VAT Declaration, Income Tax Declaration, Tax Clearance, Social Security Clearance, Municipal Tax Clearance, Application for a Job, Announcement of Employment, Application for Passport Issuance), utilizing data from the Greek Public Administration for 3 years. The results indicated the possible annual gains for administrations and citizens from the automation and transformation of the above-mentioned services, which to a certain extent can be achieved by enhancing of interoperability between governmental services. For instance, concerning the Issuance of Family Certificates in Greece this amount can account up to 35 M EUR (Charalabidis and Askounis 2010). Herein, the tool has been demonstrated through an application, in which the service of “Personnel Employment” deployed by a Greek University has been simulated through alternative scenarios, where individual steps of the processes were automated at certain points. The results revealed that the possible gains for administrations and citizens can reduce the costs at 66%, if fully automated.

In order to collect some initial feedback on the usability and applicability of the proposed method, a questionnaire has been designed including questions on two perspectives: on the one hand, the ease of use of the application and on the other hand on its usability in the reorganization of the procedures based on the provided results. The questionnaire has been filled by a closed group of representatives of public administrations, who have been asked to use the platform and provide the degree of their agreement/disagreement with each of them in a five-level scale on

the above aspects. Furthermore, after filling this questionnaire, a qualitative discussion was conducted with the quality manager of the public administration involved in the application scenario in order to get a deeper insight of his perceptions. These preliminary evaluation results indicated that the application presents difficulties, mainly during the insertion of the organization's procedures. Despite these difficulties, which are common in all procedure-reorganization tools, all users that tested the eGOVSIM II platform seem to agree that it provides the capability to extract the necessary results that can support the administration of an organization to safely reorganize its procedures, although their skeptical on the accuracy of the results. However, it is generally believed that the accuracy can be improved by further testing and calibrating the application through different real-life scenarios.

A key determinant for the success of the approach is the information needs in terms of input properly supplied by the user. The application process requires values for static parameters of unitary administration costs, such as payroll costs, communication costs, or printing and storage costs, which differ from time to time and across different countries. Moreover, the parameters of unitary citizen/business costs such as the average cost of citizen or business (waiting in queue, or processing) time are required.

Current limitations of the approach have to do with the non-trivial effort needed to integrate multiple services and multiple transformation scenarios, so that more cross-organization simulations can be run at national level. Hence, if a wide adoption of the tool is to be achieved, the organization of training sessions targeted administrators especially from the public sector in order to train them in the step-by-step application of eGOVSIM II deems necessary.

Also, it has to be noted that eGOVSIM only takes into account the activity-related costs, disregarding the calculation of the infrastructure costs to be performed externally. There are several factors hindering the estimation of service cost analysis results, such as not precisely considering overhead costs (Keller 1997) or depreciation of capital assets or excluding and underestimating certain costs such as interest expenses and special costs (GFOA 2002).

Further work is to be targeted around integrating the eGOVSIM model with Business Process Management platforms, so that different transformation scenarios will be evaluated close to the formal definition of the service flows, or collaboration tools that enable participatory design of public services, so that service consumers' acceptance is not neglected (Anthopoulos et al. 2007). Extension of the approach is suggested to include infrastructure and other third-party costs, and continued experimentation with services, in an effort to further calibrate the model with real data. Finally, although a first validation from users has been achieved, further evaluation of the approach and the platform is needed in order to assess its usefulness, identify weaknesses and shortcomings, and pinpoint possible directions for improvement.

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Citizen Relationship Management in Local Governments: The Potential of 311 for Public Service Delivery

Sarah Hartmann, Agnes Mainka and Wolfgang G. Stock

Abstract The American citizen relationship management system 311 achieved much success in recent years. It started as a simple hotline and has evolved to a multi-channel communication system which offers a wide range of governmental services, e.g., Web self-service portals, social media, and mobile applications. In many cases, it functions as a single contact point for any issue citizens could have within their neighborhood. It is assumed to allow for quicker and easier access to non-emergency municipal services and information as well as to improve effectiveness and efficiency of governmental service delivery. However, current research on the changes in public service delivery evoked by 311 as well as the importance of different communication channels is missing. Therefore, this chapter introduces 311 systems in three American cities and exposes that the extent to which governmental service provision changed is dependent on the type of request. Considering the strong increase in the number of requests, governmental service delivery has improved in recent years. In addition, the variety of different communication channels can be assumed to be of major importance in order to reach a broad range of citizens. Besides that, the data generated by 311 allow for new opportunities in the provision of governmental information and services and have big potential for improvements in public administrations.

S. Hartmann (✉) · A. Mainka · W.G. Stock
Department of Information Science, Heinrich Heine University Düsseldorf,
Düsseldorf, Germany
e-mail: s.hartmann@hhu.de

A. Mainka
e-mail: agnes.mainka@hhu.de

W.G. Stock
e-mail: stock@phil.hhu.de

Introduction

Since the 1990s, the reinvention of government (Osborne and Gaebler 1992) is forecasted due to the increasing importance of information, information systems (IS), and information technology (IT) in reform processes of public management (Heeks 2002). Governments are often accused not to fulfill citizens needs and have shown to be inefficient and ineffective (King and Nank 2011), presumably through their inability “to handle the increasing amount of information and coordination activities that are nowadays needed to provide traditional public services” (Cordella 2007, p. 271). The automation of administrative processes by means of information and communication technologies (ICT) is assumed to improve the efficiency and effectiveness of our public administrations (Cordella 2007). According to Bovens and Zouridis (2002), governments are transforming from street-level bureaucracies to system-level bureaucracies. The former refers to the initial use of e-government tools for the collection and storage of information and data, whereas the latter describes the evolution of fully automated electronic systems (Paulin 2013). The full integration of digital government services across different departments and agencies and thus providing government information and services at one single point of access, e.g., via an online portal, is what is described as the final stage of e-government maturity (Irani et al. 2006; Wimmer and Tambouris 2002). However, the changes in governmental processes and outputs that should have been evoked by the use of ICT in public administration are still in question (Norris and Reddick 2013). In addition, Reddick (2010a) has shown that the Internet is only the second most used source to get information or assistance. Most people prefer to ask someone in person. In particular, the phone is frequently used in order to contact government officials and agencies as well as a combination of different contact channels are preferred toward governmental Web sites and e-mailing (Reddick 2010a).

According to a study by Reddick and Anthopoulos (2014), besides traditional channels (i.e., face-to-face contacts, phone calls, and surface mail) and e-government options (i.e., Web sites and e-mailing), also new digital media (e.g., text messaging, social media, and mobile apps) are used to access governments nowadays. Channel choice seems also to be dependent on the reason behind contacting governments, for example, e-government services are preferred for retrieving information and advice whereas phone calls are primarily used in order to solve problems (Reddick and Anthopoulos 2014). One example of a system, which focuses on the improvement of public service delivery and citizen satisfaction, is the American citizen relationship management (CiRM) system 311. This system originates from a simple service hotline for government information and evolved to a multi-channel centralized system that has the potential to overcome bureaucratic borders. Reviewing the current literature less is known about the improvements and changes in governmental processes and service provision since the implementation of 311 and will, therefore, be explored within the scope of this chapter.

Citizen Relationship Management with 311

The concept of citizen relationship management was deduced from the customer relationship management (CRM) as it is applied by the private sector to manage customer interactions and to learn from them about how to improve services and products (King 2007). CRM is assumed to “encourage customer loyalty and the development of long-lasting profitable relationships for the provider” (King 2007, p. 48) as well as improve service delivery. With a CRM system, citizen data can be captured and analyzed in order to learn more about citizens’ needs and problematic areas within a city (King 2007). Primarily, local governments are assumed to achieve more efficiency, transparency, and accountability by implementing CRM systems (Reddick 2010b).

The American 311 response system achieved much success in recent years and is a citizen relationship management tool, which allows for “quick and easy access to non-emergency municipal services and information through a consolidated channel” (Nam and Pardo 2013, p. 1953). It is also assumed to provide a fruitful channel for more effective and efficient service delivery as well as citizen participation in decision-making processes (Schellong 2008). What started as a simple hotline has evolved to a multi-channel communication system which offers a variety of communication channels, e.g., Web self-service portals, social media, mobile applications, and functions as a single contact point for citizens. Particularly, mobile devices offer new opportunities as they allow being accessible anywhere and anytime, collecting more accurate data, making better decisions, reducing operational costs, speeding up processes since data can be gathered in real time, duplicates can be avoided and photographs can be captured quickly for documentation purposes (Sharma and Gupta 2004).

Current research on the success factors of 311 service implementation reveals that besides executive supporters, sponsors, and experienced partners, who help to implement the system, especially the agencies’ ability to fulfill citizens’ requests is important (Bontis 2007; Nam and Pardo 2013; Schellong 2008). However, data about the agencies’ performance are needed in order to optimize it. That data can be offered by 311 and help to detect problems within a city or specific area, foster the dialogue between decision-makers, reallocate resources, improve service efficiency, and help to make predictions about citizens’ demand. Furthermore, 311 data are assumed to have the potential to enhance government-to-citizen relationships and citizen satisfaction (Schellong 2008).

Even though there are a few studies that examine the implementation processes of 311 and its challenges according to different cities (e.g., Schellong 2008; Nam and Pardo 2014), less is known about the system’s impact on governmental services and processes. In that scope, it is necessary to expose more about the services that are offered by 311 as well as the importance of different communication channels, i.e., face-to-face (as far as walk-in centers exist), phone, the Web, social media and

mobile applications for government-to-citizen communication. Furthermore, mobile applications combine some of these channels, i.e., phone, the Web, and social media and therefore, might become more important than other communication channels. Hence, our first research question is:

RQ1: *Which channels constitute today's 311 systems and is the mobile app more important than any other communication channel?*

In addition, many assumptions are made on the impact that 311 data could have on governmental services as far as it is fed into performance management systems, but there is less evidence of the actual change in service delivery. More efficient service delivery is assumed to improve the government-to-citizen relationship as citizens realize that governments take care of their responsibilities and get their work done (Schellong 2008). Therefore, our second research question asks for the changes in governmental service provision that have been achieved by 311:

RQ2: *How has 311 changed governmental processes?*

Accordingly, this chapter will introduce today's 311 multi-channel systems and their ability to support collaborative decision-making as well as identify changes in governmental service provision. Based on that, we will highlight 311's potential to lower administrative barriers and make suggestions for future implementations. In order to agree to that claim and learn from 311 success stories, the systems in three US cities, namely New York, Philadelphia, and Boston, will be presented in the following.

Method

In order to expose a set of 311 success stories, current literature was reviewed as well as 311 mobile applications were investigated. New York, Philadelphia, and Boston were found to offer successful 311 systems. The investigation is based on face-to-face expert interviews with eight 311 government officials and managers (two from the City of New York, three from the City of Philadelphia, and three from the City of Boston) from November 12, 2015, to November 20, 2015. By means of 311 open data from the cities' open data portals¹ as well as reports published by the city government, the number of service requests, the types of issues, as well as changes in service provision were investigated. However, the latter could not be applied to the City of Philadelphia as they did not provide appropriate data.

¹NYC OpenData: <https://nycopendata.socrata.com/Social-Services/311-Service-Requests-from-2010-to-Present/erm2-nwe9>; City of Boston.gov: <https://data.cityofboston.gov/City-Services/311-Service-Requests/awu8-dc52>; OpenDataPhilly: <https://www.opendataphilly.org/dataset/311-service-requests>.

311 in New York, Philadelphia, and Boston

Prior to 311, contacting governmental agencies in order to get information or request a service could become a challenging task. A huge amount of different numbers existed, and in many cases, it was intricate to spot the right one. In Philadelphia, for example, a phone book existed with almost of 1000 different numbers that could be called but the main challenge for the customer was to find out who actually is responsible for their specific problem (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). However, not only citizens had difficulties to detect the right number, also departments were challenged to transfer citizens to the appropriate agency in the case that they had chosen the wrong number (Bontis 2007). Therefore, the main goal of 311 was to simplify and speed up this communication process between the government and its citizens in order to improve transparency and efficiency (Schellong 2008). In general, there are two main types of requests made to 311. On the one hand, citizens can ask for information related to the government, e.g., in regard to taxes, and on the other hand, citizens can request a specific service, e.g., a pothole removal and streetlight repair. In 2015, the most present service requests according to the available 311 open data across all three cities are street conditions, such as defects and pollution, street lights and signals, blocked driveways and abandoned vehicles, heat or hot water conditions, as well as graffiti removals.

Communication Channels of 311

The three investigated cities extended their 311 call centers to very comprehensive systems during the last decade. In addition to the call center, all of them started to offer 311 on the Web, via a mobile application and on social media, e.g., Twitter, Facebook, and YouTube (see Table 1 for respective launch dates). New York added 311 Online in March 2009 as well as its Twitter presence in May 2009 in order to post topical information according to 311 (New York City Global Partners 2011). The NYC311 mobile app is available since October 2009 but was not well-accepted until its relaunch in January 2014 (New York City 311 2015).

Table 1 Launch dates of 311 services on the call center, the Web, mobile, and Twitter channel

	New York	Philadelphia	Boston
Call center	March 2003	December 2008	Launch of new CRM in October 2008
Web	March 2009	January 2009	October 2007
Mobile app	October 2009	September 2012	October 2009
Twitter	May 2009	March 2009	March 2010

see Appendix for references to online presences

With the exception of Philadelphia, the 311 systems offer a 24/7/365 availability. Philadelphia was hit hard by the financial crisis in 2008; therefore, its implementation had to start on a small scale and to draw on already established services. They implemented a less expensive Web-based solution to serve as the CRM system. Because of missing marketing budget, Philly launched a word of mouth approach and visited community meetings, held presentations, talked to people, and started with meetings at churches and police departments (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). Out of this, they developed a comprehensive community engagement program which brings 311 services into the neighborhoods and changes the way citizens interact with their city government.

The City of Boston launched a new CRM system in October 2008, which fulfills many of their services much faster than before, e.g., new recycling bins could be delivered in a week instead of a month (Crawford and Walters 2013). The program was piloted by the Department of Public Works, the Department of Transportation, and the Department of Parks and Recreation. However, one of the difficulties was that some departments already had their own CRM systems that had to be integrated. Only one year later, they published the 311 mobile app (which was first called “Citizen Connect” but later renamed to “311”) in order to improve city services and solve citizen’s problems (Crawford and Walters 2013). Since 2011, a complement of Citizens Connect called City Worker app has become available for field workers of departments such as Public Works, Parks or Waste Management and allows them “to respond to dynamically updated requests and to close them on the spot” (Crawford and Walters 2013, p. 17).

The first 311 CiRM system was implemented in Baltimore in 1996 based on a call center (Bontis 2007). Today, there is a shift toward digital and mobile media. Interviewees from the City of New York report that “the majority of interactions happens in the digital channels and people love the mobile. Mobile is very successful for us. Thus, our strategy moving forward is ‘mobile first’. People think about their mobile. They don’t think of going to their desktop” (NYC 311, City of New York 2015, personal communication, 12 November). Nevertheless, the call center is still the biggest channel in New York, but it is shrinking whereas the mobile and Web channels are growing. This does not mean that the call center becomes useless: “I think there are always people who want to call the call center and that is going to be by demographic group and also certain types of calls ... that are a little bit complex and you may feel better talking to an agent” (NYC 311, City of New York 2015, personal communication, 12 November). According to the Mayor’s Management Report of the fiscal year (FY) 2015, the number of phone calls to 311 is more or less stagnant (Shorris and Tarlow 2015). Almost 21.1 million contacts were made by phone in FY 2015, 9.6 million via the 311 Web site, and 704,000 via the 311 mobile application (Shorris and Tarlow 2015).

By contrast to New York, Boston reports that although the use of the mobile channel increases, the number of phone calls has not decreased. Figure 1 approves that and shows that the number of requests that were made to the City of Boston increased about 266% from 2011 to 2015. In particular, in terms of calling as well

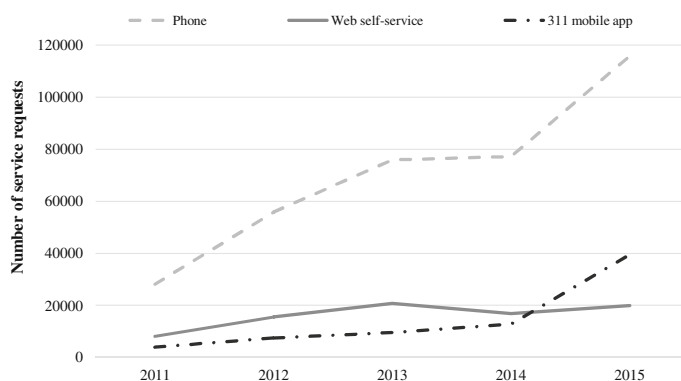


Fig. 1 Number of service requests made via phone, the Web, and the BOS:311 app from 2011 to 2015 in Boston (based on BOS:311 open data)

as using the 311 mobile app, the number of service requests leaped from 2014 to 2015. The number of requests made via the 311 Web self-service portal is much smaller but edging up. Interviewees from Boston explained that there is considerably more a change in the citizens' engagement since people are more aware of different ways and channels that they can use to contact their government (Department of Innovation and Technology, City of Boston 2015, personal communication, 20 November). To reach as many people and get as much information as possible, therefore, the city has to make sure that they allow citizens to use the channel they prefer (Mayor's Office of New Urban Mechanics, City of Boston 2015, personal communication, 20 November).

According to the interviewees, social media is another channel that is growing but primarily used for information requests. Nevertheless, the number of service requests made via Philly311's Twitter channel grew from 44 in 2011 to 565 in 2014 (Table 2). In general, most of Philly311's communication channels are growing,

Table 2 Number of service requests made on Philly311 communication channels per year

	2009	2010	2011	2012	2013	2014
Phone	63,184	72,966	90,620	78,963	79,843	93,257
Email	987	3302	4274	5318	5810	5341
Mobile	–	–	5	1677	1777	7441
Walk-in center	974	1398	1507	1122	878	795
Communities	447	884	1366	952	260	1812
Web self-service	–	1066	2483	906	135	1129
Twitter	–	–	44	262	210	565
Fax/mail	2	37	21	13	5	1
Facebook	–	–	–	–	–	33

Source The Philly Innovates Blueprint, n.d.

except for email and the walk-in center. Primarily, the social media channels are reported to be very helpful for information dissemination, more precisely for education: “We write via blogs ... about how things work within the city and guidelines like dos and don’ts, for example, why you cannot dump something on your neighbor’s yard in” (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). In Philadelphia, they name it the 3 Es “educating, empowering, and engaging” of customers, what is the main goal of Philly311.

However, why people prefer different channels is difficult to answer. “People who are more comfortable to use the mobile app, are more comfortable with technology and are more comfortable to give information on the mobile device” (NYC 311, City of New York 2015, personal communication, 13 November); therefore, users’ age might be a factor but also their personal habits. In New York, most people do not want to talk to an agent personally (NYC 311, City of New York 2015, personal communication, 12 November) whereas “in Philly a lot of customers like to talk via phone” (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). Although that might be related to the respective city, all interviewees mentioned that it is very important to “meet the customer where the customer is” (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November) and to get as many people as possible to report and make them feel comfortable with the technology they have (Mayor’s Office of New Urban Mechanics, City of Boston 2015, personal communication, 20 November). For this reason, the City of Philadelphia not only offers a great number of different 311 contact channels but even allows for face-to-face communication, community meetings, and responds to personal letters. A higher preference for non-digital communication channels might also be reasoned in the digital divide that is still an issue in Philadelphia. About 27% of people living there do not have access to the Internet in their households or via smart devices (United States Census Bureau 2014). For this reason and their budget constraints, the city also developed several community engagement programs along with 311, e.g., the Neighborhood Liaison Program (NLP) at which volunteers are trained to record items discussed during community meetings, so that the public service concerns of their neighborhood are directly reported to Philly311 (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). Also, the City of New York established a service which focusses on specific people. They offer homeless assistance via 311. In the case that citizens detect a homeless person on the streets, who they want to help, they can call 311 or send a request via the NYC311 mobile app.

Additionally, it depends on the users’ need which channel they prefer (NYC 311, City of New York 2015, personal communication, 13 November). Issues with higher complexity will certainly be reported by phone. In the case of Boston, in fact, differences between the type of service that is requested and the channel that was chosen for that specific service can be shown. Table 3 presents the ten most frequent service requests in regard to BOS:311’s different communication channels. Although it is possible to request snow plowing or report about missed trash via the 311 mobile app. Most of these service requests were made by calling whereas

Table 3 Number of service requests made via phone, the Web, and the 311 mobile app in the City of Boston, according to the top ten most often requested services in 2015

Type of service	Phone	Web self-service	311 mobile app
Request for snow plowing	20,933	3459	5946
Missed trash/recycling/yard waste/bulk item	12,321	3419	560
Requests for street cleaning	2116	0	6263
Schedule a bulk item pickup	12,073	5379	0
Request for pothole repair	1354	365	2407
Parking enforcement	2394	303	5527
Street light outages	1268	293	3471
Building inspection request	4857	99	0
Sign repair	537	93	1705
Graffiti removal	361	245	3666

requests for street cleaning, street light outages, sign repairs, or graffiti removals are more often made via the 311 mobile app. This might be due to the urgency of the matter. In fact, 70% of all service requests that came in via the app are attached by a picture. In many cases, the self-service option via the 311 Web site is less often chosen than calling by phone or reporting an issue via the 311 mobile app.

Consequently, not only the use of the 311 communication channels has changed; moreover, the channels are used for different purposes. Whereas the phone is reported to be more suitable in order to notify about complex problems, the mobile app is valuable when pictures are needed to document an issue. In general, the phone is still the most used channel followed by the mobile app in Boston and Philadelphia. In New York, the Web portal got higher numbers of requests than the mobile app, although the city wants to change that and shift more people to send requests via the app (NYC 311, City of New York 2015, personal communication, 12 November). However, less frequently used communication channels, e.g., social media or the Philly311 walk-in center, are important as well, as they allow attracting a wide range of people who might otherwise be excluded (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November).

Nevertheless, there is a trend of reporting conditions on a mobile app that affect citizens' neighborhood, like where to plant a new tree in their street or reporting about potholes. The 311 apps are assumed to allow for improvements in civic participation as they can be used location-independently and more easily be adapted to temporary issues, e.g., at election times or seasons (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). The mobile apps offer better ways for communication between city government and citizens, e.g., by providing photographs when the service that has been requested is fulfilled or asking for additional information in the case that difficulties occur (Department of Innovation and Technology, City of Boston 2015, personal communication, 20 November). It was never possible to reach that many people in a very short time before. In particular, in emergencies, the 311 app is helpful to push out information

that is needed by citizens (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). The City of Boston mentioned that the advanced options for personal communication are the main advantage of the mobile app, e.g., a city worker should be able to get directly into contact with citizens, and thus, a chat function is planned. In future, citizens will not only be informed about case closures but about inspections or information transfers to other departments. When thinking about the next years of Philly311, mobile apps will become more intelligent from the governmental side, and instead of waiting for the customer to call, they should become more proactive (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). For example, kids could be informed about areas in which criminality is expected, e.g., by a short notice popping up when they approach that area. However, although the 311 app is a very important channel, the other ones will not become useless in the near future as long as there are people who prefer to walk-in or to call 311.

Changes in Governmental Processes

The interviewees reported that 311 makes it “easier for our customers to interact with local government. The customers don’t have to know who they need to talk to. They only have to explain their problem and then the agents will assist them and find the required information” (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). Although it is very important to educate citizens in particular about the complexity of service requests, the time till a topic is resolved strongly depends on the type of request. Some departments share their responsibilities, and in some cases, the difficulty is to classify the issue correctly, e.g., the customer might report a pothole, but when the streets department goes out to investigate it, they might identify it as a ditch. Whereas a pothole takes three days to repair, a ditch or a cave-in takes up to 45 days (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November).

Above all, when citizens see that they can “get something done then they take pride in their community and help report things” (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). Thus, 311 has the potential to change the relationship between government and citizens. According to the interviewees from Boston, 311 will impact citizens’ faith in government since they see that government is actually doing something. They do not only provide services, they also involve citizens in decision-makings because they use the data generated by 311 to drive policies and change citizens’ perspective on their political points and their voting preferences (Department of Innovation and Technology, City of Boston 2015, personal communication, 20 November).

In New York City, the Local Law 47 (established in 2005) requires that monthly reports about the data collected on the requests made to 311 are issued. The law helps to ensure that performance data are available which lead to better-informed citizens and a more open government (New York City Global Partners 2011).

All customer correspondence is tracked by the Citywide Performance Reporting (CPR) application that is used to measure request volumes and performances via dashboards and reports (Department of Information Technology and Telecommunications 2015). Interviewees from New York explained that all data are published on their open data portal so that it can be used by everyone, e.g., to develop mobile apps or maps. In addition, in New York, the data are used by their business intelligence tool to make sure that it is of high quality and persuasive for performance management on the agencies.

Philly311 is part of the mayor's performance improvement program along with which the city executives meet regularly for performance management meetings, the so-called PhillyStat meetings (Nam and Pardo 2014). Furthermore, the data made available by 311 help in emergency situations, e.g., during Hurricane Sandy where all requests have been forwarded within a live feed (City of Philadelphia, n. d.). Interviewees from Philadelphia reported that the changes in the street department's route planning are good examples of how the data can help to improve their service. With the help of the data, they can see how many street lights are out and based on that they can prioritize the areas with the greatest need (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). An interviewee from Philadelphia mentioned that the data help to detect problems according to specific areas, and all cities highlighted that they want to make sure that "the agencies are using the data to drive decisions, better decisions within their departments, so that they become more efficient and effective on what they are doing" (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). The next step now is to think about how they can visualize these trends better, e.g., in due seasons, it could be helpful to publish flood destinations around that time according to the data. Thus, the data are used to detect trends, to operate better and, due to the open accessibility, many schools and researchers analyze and process them (Department of Innovation and Technology, City of Boston 2015, personal communication, 20 November).

To get a more detailed view on the development of service delivery in regard to the service requests that can be made via 311, the 311 open data of the City of New York and the City of Boston were analyzed in regard to closing dates of service requests. The City of Philadelphia did not provide those data and was therefore excluded from the following analysis.

Considering the time needed to solve the ten most frequently requested issues, as shown in Table 4, in most cases, there are no major differences in the number of days needed to solve a specific complaint between 2011 and 2015. Only pothole repairs and noise complaints decreased, whereas slightly more time was needed to repair street light outages in 2015. However, this is a positive result as the number of complaints increased.

In general, the analysis of the number of days which were needed to close a case in 2011 in comparison with 2015 for NYC311 shows that the average number of days needed to solve an issue is slightly decreasing. Six of the specific complaint types which show the highest differences between the numbers of days needed to close a case in 2011 and 2015 are addressed to street signs. Primarily, in regard

Table 4 Top ten requested service types in New York in FY 2015 with their number of complaints and days until closure in FY 2015 and FY 2011

General type	Description	Number of requests in 2011	Number of requests in 2015	Average number of days until closure in 2011	Average number of days until closure in 2015
Street condition	Pothole	56,090	78,869	11.2	4.8
Blocked driveway	No access	42,867	67,093	0.1	0.2
Street light condition	Street light out	53,537	56,382	9.3	10.8
Noise: commercial	Loud music/party	16,535	31,551	0.2	0.2
Noise: street/sidewalk	Loud music/party	8153	25,421	0.2	0.3
Noise	Noise: construction before/after hours	6892	24,967	8.8	5.6
Traffic signal condition	Controller	27,298	23,515	2.2	2.1
Blocked driveway	Partial access	11,151	22,133	0.1	0.2
Illegal parking	Posted parking sign violation	9188	21,835	0.1	0.1
Sanitation condition	Street condition/dump-out/drop-off	16,121	19,166	1.8	1.7

to street and highway conditions the interviewees mentioned that responsibilities are very different, for example, it depends on the specific location whether the city or the state is responsible as well as on the issue; sometimes, it can be necessary to transfer the case to another agency, e.g., the issue is not a pothole but a cave-in, which has to be repaired by another agency. Further problems can occur in regard to missing location information or time depending issues (Philly311 Contact Center, City of Philadelphia 2015, personal communication, 16 November). In the case of street signs, the Department of Transportation (n.d.) mentions on its Web site that they give higher priority to signs that directly impact safety, e.g., stop signs whereas the six cases mentioned above are less important in regard to safety. Indeed, the number of days needed to resolve the requests in regard to stop signs (two days faster) as well as speed limits (80 days faster) decreased from 2011 to 2015. In the City of Boston, the number of days needed to close a service request increased by about 47 days on average between 2011 and 2015, but the number of service requests did not increase per se, the differences depend on the service type. Some request types need more time, e.g., requests for snow plowing and graffiti removal

(31 days in 2015 toward 20 days in 2011) whereas others could be resolved faster, e.g., street light outages (23 days in 2015 toward 32 days in 2011).

Comparing specific service request types across the three cities is difficult because each categorizes their request types differently. For example, the City of Philadelphia and the City of Boston classify complaints in regard to graffiti removals into one or two categories whereas the City of New York differentiates graffiti complaints into eleven specific request types. Besides that, different terms are used, e.g., “rubbish collection” in Philadelphia and “litter” in New York. Furthermore, different goals are set. For example, a pothole should be closed within one business day in the City of Boston, within three business days in Philadelphia, and within 30 days in New York, whereas a street light outage is reported to be closed within ten business days in all three cities (Department of Innovation and Technology, City of Boston 2015, personal communication, 20 November; Shorris and Tarlow 2015). However, it has to be kept in mind that there are great differences between these cities. They are of different size what leads to differences in the number of people who are complaining as well as the service requests that have to be solved, but also departments’ responsibilities and legislations are different. The City of New York, for example, had to pass a law in order to be able to remove graffiti after 35 days without a property owner’s permission (Metro 2014).

Nevertheless, 311 provides quick and easy access to the city government and for a lot of people, it is the single point of access to their government as they only have to call 311 and then get the information they ask for or will be directed to the proper agency (NYC 311, City of New York 2015, personal communication, 13 November). People only want to get their “problems be solved and be heard by the city” (Mayor’s Office of New Urban Mechanics, City of Boston 2015, personal communication, 20 November). That is what is made possible by 311 as well as it is key to civic participation. A study by Buell and Norton (2013) shows that people are more likely to support governmental programs and develop a more positive attitude towards government if they get a picture back which shows that their service request was fulfilled. “So to me that says that people want to have a little bit more of a human interaction with their city” (Mayor’s Office of New Urban Mechanics, City of Boston 2015, personal communication, 20 November). Trust can be assumed to be an important factor for citizen participation in 311. People have to know that if they call 311 the issues that they reported will be handled in some sort of way and be taken seriously (NYC 311, City of New York 2015, personal communication, 13 November). To support that, each request gets a confirmation number which can be tracked. It is important that the city is open-minded and tries to stay up-to-date in terms of new technologies. For this purpose, hackathons and app competitions are mentioned to be helpful in order to come in contact with the civic technologist community and detect new ways of giving as many people access to city government and the services they need as possible (NYC 311, City of New York 2015, personal communication, 13 November).

Conclusion

All three cities developed comprehensive 311 systems that offer a number of communication channels. Social media and mobile apps, additional content, e.g., state and federally related information, as well as specific services, were added step by step in recent years. The most popular service requests are those that affect the citizens' daily life, e.g., street or building conditions. In addition, each city developed further programs, e.g., Philly Neighborhood Liaisons, and services, e.g., homeless assistance, or applications, e.g., Boston's City Worker app in order to address specific needs or problems which they noticed over the years.

Governments noticed that certain groups of citizens, e.g., the youth, civic technologists, and disadvantaged groups, need to be addressed differently nowadays. Therefore, a diverse number of communication channels is needed in order to engage them in governmental processes and issues. This finding is in line with the actual literature debate. Different groups of people in terms of, e.g., age, education, and income, prefer different communication channels (Reddick and Anthopoulos 2014). Therefore, all communication channels are of great importance, although they might only be used by a small number of people. Governments have to make sure that they reach all people living in a city regardless of channel preferences, skills, or living conditions. In particular, mobile technologies have the potential to overcome the digital divide as they are more affordable than wired networks. Mobile services make governments accessible anywhere and anytime and in addition allow for "more accurate data collection, better decision-making, and reduced operational costs" (Sharma and Gupta 2004, p. 466). It has the potential to speed up processes since data can be gathered in real time, duplicates can be avoided, and photographs can be captured quickly to document processes. However, that greater accessibility and channel choice might also lead to many more challenges and costs for local governments that will not be affordable by smaller cities. The multi-channel systems not only evoke greater maintenance costs but it also requires more flexibility in serving citizens equally in much more ways than governments were used to before. In addition, the easier ways of access led to greater numbers of requests which will probably increase even more in future, but citizens will not lower their expectations in terms of an acceptable timeframe to solve an issue. Furthermore, besides service provision, also the analyses of data that are mandatory in order to improve performances and decision-making processes require additional effort that cannot be accomplished by all cities. To solve these problems, the Mayor's Office of New Urban Mechanics in Boston developed a national version of their former 311 app named Commonwealth Connect, which allows citizens across Massachusetts to report issues to their government (New Urban Mechanics 2016).

Summarizing, 311 can be expected to have a very positive impact on citizens' perception of governmental services as agencies now have the opportunity to put the citizen and their satisfaction as well as the quality of life in citizens' neighborhoods at the heart of governmental service provision. On top of that, agencies

work more effectively and efficiently as 311 also allows them to analyze their service outcomes and customer satisfaction and thus agencies steadily know about their performances and are encouraged to improve them continuously. Although not yet great changes in service provision became apparent, even so, that can be highlighted as positive results due to the strong increases in the number of service requests.

This study underlines that the use of 311 data has helped to make governmental processes more transparent and efficient. A large amount of data about civic and neighborhood life issues that are collected by 311 allow for new opportunities in the provision of governmental information and services. For example, the data are used to restructure routes of servicing departments and prioritize areas with a greater demand for governmental service delivery. Besides that, it could be used to send out alerts or push news that might be of interest for citizens in regard to a specific area and, consequently, 311 could become more proactive and arrange for higher safety and comfort levels as well as detect problematic areas before they actually become an issue. This requires that the data are indeed representative for the majority of citizens. Otherwise, data-driven decision-makings and service improvements could lead to greater distrust and dissatisfaction. Nevertheless, the system supports bureaucratic administrations as it helps to optimize information flows, simplifies decision-makings, and speeds up processes based on citizens' needs instead of bureaucrats' and still offers many opportunities for advancements.

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Appendix

311 Web self-service portals

www.nyc.gov/311

www.phila.gov/311

www.cityofboston.gov/311

311 mobile apps

<https://itunes.apple.com/us/app/nyc-311/id324897619?mt=8>

<https://itunes.apple.com/us/app/philly-311/id533292779?mt=8>

<https://itunes.apple.com/us/app/bos-311/id330894558?mt=8>

311 Twitter channels

www.twitter.com/nyc311

www.twitter.com/philly311

www.twitter.com/bos311

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Digitalization in Greece: State of Play, Barriers, Challenges, Solutions

Sokratis K. Katsikas and Stefanos Gritzalis

Abstract Digitalization refers to the adoption or increase in use of digital or computer technology by an organization, industry, country, etc. Several sources of information exist that allow the determination of the state of play as regards digitalization in Greece; Greece performs poorly in all these measurement frameworks. Greece's strengths in relation to its ability to progress substantially with digitalization lie in its human capital; the broadband penetration and usage; and the research and development output. In contrast, its most important weaknesses are the lack of importance of ICT in the political vision and government agenda; the success of the government in pushing forward the use of ICT; the effectiveness of the judicial system in resolving business conflicts and in resolving regulation disputes; and the ineffectiveness of the public administration. In this chapter, we identify the reasons for this poor performance and attribute them to intrinsic characteristics of the political landscape in Greece, with a view toward formulating proposals for solving inherent, long-lasting problems.

Introduction

According to the Oxford English Dictionary (OED), *digitalization* is “the adoption or increase in use of digital or computer technology by an organization, industry, country, etc.” Digitalization should not be confused with *digitization*, which

S.K. Katsikas (✉)

Center for Cyber and Information Security, Norwegian University of Science and Technology, Gjøvik, Norway
e-mail: sokratis.katsikas@ntnu.no; ska@unipi.gr

S.K. Katsikas

Department of Digital Systems, University of Piraeus, Piraeus, Greece

S. Gritzalis

Department of Information and Communication Systems Engineering,
University of the Aegean, Samos, Greece
e-mail: sgritz@aegean.gr

according to the same source is “The conversion of text, pictures, or sound into a digital form that can be processed by a computer.” Despite the clear difference, both terms have been used interchangeably by many authors.

Digitalization affects the contemporary world in several ways: It facilitates the globalization of the economy; it subsequently infringes upon national sovereignty, reshapes conceptions of materiality and place, and facilitates new circulations of culture, capital, commodities, and people; it creates changes in national economies and occupation patterns; and it bears wide-ranging effects on social life (Kreiss and Brennen 2014). Digitalization also helps to open up governments and offers opportunities for more collaborative and participatory relationships that allow citizens, businesses, and nongovernmental organizations to actively shape political priorities, collaborate in the design of public services, and participate in their delivery. Improved service delivery and internal public sector efficiency go hand in hand with economic growth, societal equality, and good governance objectives such as greater transparency, integrity, and citizen engagement (OECD Council on Digital Government Strategies 2014). The de-politicization and individualization of citizens (Björklund 2016) and the widening of the digital divide are among the reported possible downsides of digitalization.

Several sources of information exist that allow the determination of the state of play as regards digitalization in a country. These include the EU Digital scoreboard (European Commission 2016); the United Nations eGovernment survey (United Nations 2016); the eGovernment Benchmark report (European Commission 2015); the Global Information Technology Report (Baller et al. 2016); the ITU’s Measuring the Information Society Report (International Telecommunication Union 2016); and the digitization index of (Katz et al. 2014).

In this chapter, we examine these sources in order to assess Greece’s performance in digitalization, which turns out to be rather poor as compared to the EU average. Further, we attempt to identify the reasons for this shortcoming and to attribute them to intrinsic characteristics of the political landscape in Greece, with a view toward formulating proposals for solving inherent, long-lasting problems. By doing so, we contribute to improving our understanding of why a country may fall behind in its digitalization efforts, by means of a case study of an EU member state. Moreover, we contribute proposals as to how governments can address shortcomings in the digitalization process; these are not particular to the Greek case and can be applicable to other countries as well, as similarities do exist among different cases. The remaining of the chapter is structured as follows: In Section “[Background](#)”, we discuss in some detail alternative benchmarking tools that measure countries’ digitalization performance and use them to assess Greece’s performance. In Section “[Strengths, Weaknesses, and Obstacles](#)”, we analyze the strengths and weaknesses of Greece with respect to the digitalization process, as they emerge by analyzing the findings of the reports mentioned above. In Section “[A Way Forward](#)”, we formulate a set of proposals for reforming the Greek public administration in an effort to alleviate some of the barriers and to respond to some of the challenges identified in Section “[Strengths, Weaknesses, and Obstacles](#)”. Finally, Section “[Concluding Remarks](#)” summarizes our conclusions.

Background

The EU Digital scoreboard (European Commission 2016) measures the progress of the European digital economy by means of The Digital Economy and Society Index (DESI), which is a composite index that summarizes relevant indicators on Europe's digital performance and tracks the evolution of EU member states in digital competitiveness. The DESI is structured around five principal dimensions, namely connectivity; human capital; use of Internet; integration of digital technology; and digital public services.

The United Nations eGovernment survey (United Nations 2016) has been based on a conceptual framework that has adopted a view of e-Government development resting on three important dimensions, namely the availability of online services; the telecommunication infrastructure; and the human capacity. These three components form the e-Government Development Index (EGDI).

The eGovernment Benchmark report (European Commission 2015) analyzes all the related services offered online for seven life events and presents eGovernment performance across four policy priorities, namely user centricity; transparent government; cross-border mobility; and key enablers.

The Global Information Technology Report (Baller et al. 2016) assesses the factors, policies, and institutions that enable a country to fully leverage information and communications technologies (ICTs) for increased competitiveness and well-being, by using the Networked Readiness Index (NRI) which rests on six principles:

1. A high-quality regulatory and business environment is critical in order to fully leverage information and communications technologies (ICTs) and generate impact;
2. ICT readiness—as measured by ICT affordability, skills, and infrastructure—is a precondition to generating impact;
3. fully leveraging ICTs require a society-wide effort: the government, the business sector, and the population at large each have a critical role to play;
4. ICT use should not be an end in itself. The impact that ICTs actually have on the economy and society is what ultimately matters;
5. The set of drivers—the environment, readiness, and usage—interact, coevolve, and reinforce each other to form a virtuous cycle; and
6. The networked readiness framework should provide clear policy guidance. The framework translates into the NRI, a composite indicator made up of four main categories (subindices), 10 subcategories (pillars), and 53 individual indicators distributed across the different pillars.

ITU's Measuring the Information Society Report (International Telecommunication Union 2016) uses the Information Development Index (IDI) which is a composite index combining eleven indicators into one benchmark measure that can be used to monitor and compare developments in information and communications technology (ICT) between countries and over time. The IDI is divided into three subindices: the

access subindex, the use subindex, and the skills subindex, which capture different aspects of the ICT development process.

Finally, (Katz et al. 2014) define and use a digitization index to measure the cumulative, holistic impact of discrete information and communications technologies. The index is composite and was developed based on six overarching components: affordability, infrastructure investment, network access, capacity, usage, and human capital.

Greece performs poorly in all these measurement frameworks, as compared to its partner member states of the European Union. It ranks:

- 26th out of the 28 EU member states in the EU Digital scoreboard 2016. It is among the *falling behind* countries, i.e., “those that score below the EU average and whose development over the last year was slower than that of the EU as a whole. These countries are already less developed than the EU average, and by showing anemic growth they are distancing themselves further from the rest of the EU” (European Commission 2016). Greece’s performance with respect to the five dimensions of DESI is graphically depicted in Fig. 1, along with the corresponding EU averages.
- 21st among the EU member states and 43rd out of the 149 countries surveyed in the United Nations eGovernment survey 2016. Greece’s performance with respect to the three dimensions of the EGDI is graphically depicted in Fig. 2, along with the corresponding averages for Europe.
- in the 50–75% performance cluster for user centricity; in the 25–50% cluster for transparency; and in the 0–25% cluster for both the key enablers and the cross-border mobility benchmarks in the European Commission eGovernment Benchmark report 2015. These results place Greece in the *High Potential Cluster* of countries. This group “is characterized by a wide contrast between the level of digitization (low) and the level of penetration (medium–high). This cluster is getting things right, but the lower level of digitization implies that Public Administration processes could increase in efficiency and cost savings could be realized if the necessary action were to be initiated. It also shows that despite the efforts required, citizens are confident of the eGovernment potential

Fig. 1 Greece in DESI 2016

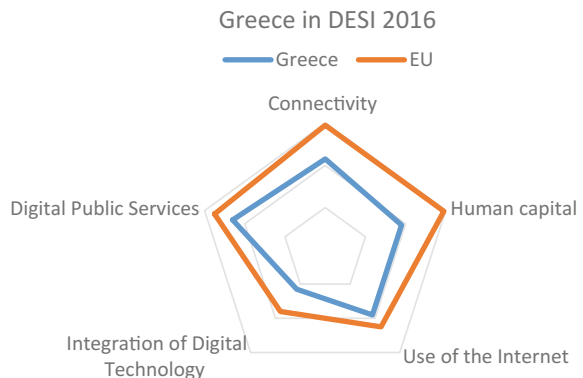
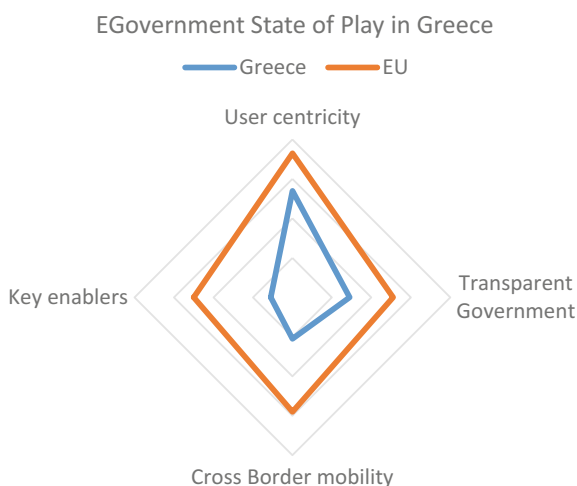


Fig. 2 Greece in EGDI 2016**Fig. 3** EGovernment state of play in Greece 2015

and use online services” (European Commission 2015). Greece’s performance with respect to the four dimensions of the EGDI is graphically depicted in Fig. 3, along with the corresponding EU averages.

- Last among the EU member states and 70th out of the 139 countries surveyed in the Global Information Technology Report 2016. Greece’s performance with respect to the four subindices of the NRI is graphically depicted in Fig. 4, along with the corresponding EU averages.
- 17th among the EU member states and 36th out of the 167 countries surveyed in the ITU’s Measuring the Information Society Report 2016. Greece’s performance with respect to the three subindices of the IDI is graphically depicted in Fig. 5, along with the corresponding EU averages.
- Last among the 20 western European countries studied in (Katz et al. 2014).

Fig. 4 Greece in NRI 2016

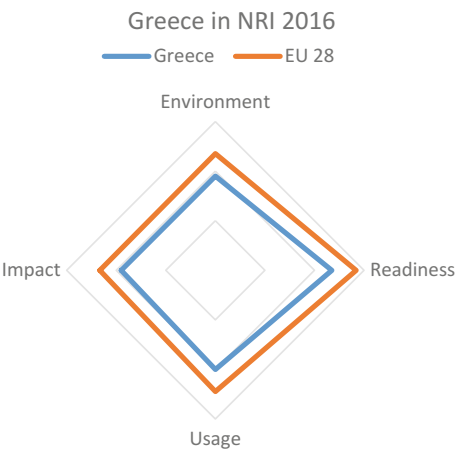
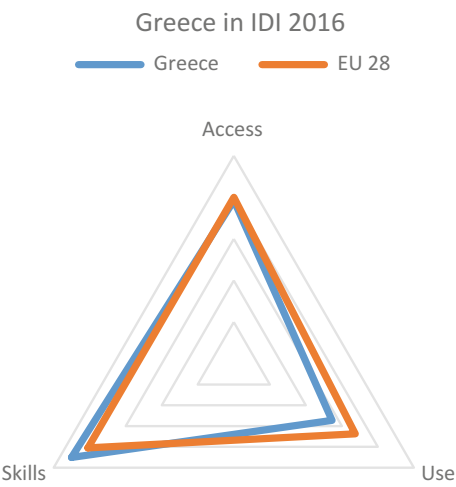


Fig. 5 Greece in IDI 2016



Strengths, Weaknesses, and Obstacles

The sources of information discussed in the previous section measure different aspects and indices of a country’s level of digitalization. Despite the differences, or perhaps because of them, it is possible to identify particular areas of a country’s relative strengths and weaknesses. In the sequel, we use the NRI indicators, NRI being the most comprehensive of all the above sources, to focus on areas in which Greece performs worst of all. These may be grouped into areas related to the human capital; the infrastructure and its usage; the digitalization strategies; the organizational and governance framework, the entrepreneurial, judicial and regulatory environment; and the public sector administration.

Human Capital

Greece's greatest strength in relation to its ability to progress substantially with digitalization lies in its human capital. The country ranks 1st in the world in the NRI subindex on the tertiary education gross enrollment rate and 26th in the corresponding index for secondary education, well above several EU member states, whereas it ranks 34th when it comes to adult literacy rate. Clearly, better education leads to improved acceptance of new technologies, better assimilation of these into everyday practices, better ability to exploit them, etc. However, the DESI (European Commission 2016) finds one of the lowest in Europe level of digital skills in Greece, with only 63% of the population being regular Internet users and 30% never having used the Internet and concludes that "Greece needs to address its severe digital skills gap." It should also be noted that Greece has the lowest share of ICT specialists in the workforce among all EU countries (1.3% in 2014). Additionally, the quality of the education system is low, with Greece ranking 114th among the 136th countries of the NRI. These apparently conflicting findings can safely be attributed to a long-lasting policy of massification of education, particularly of tertiary education, without increasing the resources allocated to the education system. Detailed international statistics (e.g., from UNESCO, Eurostat, and OECD) on Greece's public and private expenditure in all educational levels are not available after 2005. However, according to the national budget for 2016, public expenditure on education is at 2.8% of the total government budget, and the percentage of expenditure on education over total expenditure was at 8.8% in 2014 (Eurostat 2016), placing Greece at the 26th position among EU member states, with only Italy and Romania falling behind.

Similarly, another of Greece's strengths lies in research and innovation: Greece ranks 27th among 239 countries in the SJR ranking (Anon. 2016d) and 34th among 40 countries in Scientific American's "The World's Best Countries in Science" (Anon. 2015a). It also ranks 37th on PCT patents per capita and 39th on ICT PCT patents per capita in the NRI index. These are quite surprising achievements for a country that spent a mere 0.80% of its GDP on R&D in 2013, ranking 25th among EU member states (Anon. 2015b).

Infrastructure and Usage

Related to the level of education is the subindex on e-participation, which places Greece in the 17th position of the NRI ranking. High e-participation is also related to the fixed broadband Internet subscriptions (22nd); international Internet bandwidth (28th); and mobile network coverage (37th) but is hindered by the high cost of prepaid mobile cellular tariffs, which is largely due to excess taxation. Almost 40% of the bill for a personal mobile phone is tax (Katsikas 2014).

The contribution of the ICT sector to the country's GDP has been steadily dropping since 2008, a year before the debt crisis officially started. Specifically, it dropped from 2.61% in 2008 to a mere 1.84% in 2014, the lowest among the countries for which data are available (Anon. 2016b). As the Greek GDP did not increase (in fact it decreased) in the same period, it follows that the ICT sector in Greece deteriorated in these times. As the public sector has been traditionally the main driving force of the Greek ICT industry, the change of political priorities that were brought about by the recession has decisively influenced this adverse development. The ICT market size in Greece is expected to decrease by a further 2.7% in 2016, while it is hoped that it will stabilize in 2017 (European IT Observatory 2016).

The openness of government data is also a factor affecting e-participation. Open government data are widely believed to help increase the effectiveness and efficiency in the government operation, by saving time and operation costs; by increasing transparency and accountability, thus allowing citizens to question and control the decision-making processes of the public administration and to facilitate information sharing; and by allowing the crowdsourcing or delegation to the private sector of many type services.

The 3rd edition (2015) of the Open Data Barometer global report (Open Data Barometer 2015) shows Greece sharing position 33 with two other countries among 92 surveyed, having dropped two positions as compared to the 2nd edition of the same report. In this report, the overall score of a country is made up of three individual scores, one measuring readiness, one measuring implementation, and one measuring impact. Measuring readiness involves analyzing policies and data management approaches (Do governments have adequate policies and protocols in place for ensuring open data can be made available over the long term?); government action at the national and subnational level (Is the groundwork being laid for the benefits of open data to be used at all levels of government?); civil rights and the role of citizens (Are citizens and civil society empowered to participate in government decision making using open data?); and business and entrepreneurship (Are businesses and entrepreneurs able to take advantage of the economic opportunity offered by open data?). The implementation component looks at the extent to which government data—open and not open—are published. This allows to assess how much of these data are open, accessible, and timely over 15 kinds of data included in the survey. Impact is assessed at the political, social, and economic levels, including:

- Transparency and accountability, and improved government efficiency and effectiveness;
- Environmental impacts, and contributions to greater inclusion for marginalized groups in society; and
- General contribution to the country economy, support to start-up entrepreneurs and existing businesses.

Each individual score is calculated comparatively against the best performance among all surveyed countries and is expressed as a percentage. Greece scores relatively high in readiness (60%), but low on implementation (38%) and even lower on impact (18%).

Greece has been a member of the Open Government Partnership (OGP) since 2011 and is among the countries currently implementing their 3rd cycle action plan. According to the version made available for public comment of the 2nd OGP Independent Reporting Mechanism (IRM) report (Melidis et al. 2016), *“Following the debt crisis, government instability stalled implementation of the Greek action plan. The commitments, focused on access to information and parliamentary transparency, were not sufficiently detailed to lead to meaningful reforms. The action plan tackled key areas such as taxation and open data, but the next action plan could include key national issues such as healthcare and the pension system.”* In more detail, only one of the 19 (5%) of the commitments has been completed, 3 (16%) commitments show substantial progress, 10 (53%) commitments show limited progress, while work has not yet started on the remaining 5 (26%) commitments. Timewise, only 4 (21%) of the commitments are progressing according to plan.

As far as e-GIF performance is concerned, the Greek government e-GIF site (<http://www.e-GIF.gov.gr/portal/page/portal/egif/>) does not seem to have been updated since 2009. This is perhaps indicative of the importance attributed to this aspect by the Greek governments since and explains the extent of alignment of the Greek National Interoperability Framework (NIF) related to the European Interoperability Framework (EIF) (National Interoperability Framework Observatory 2016), according to which the Greek NIF is only partially aligned to the EIF in all 5 considered aspects (Principles; Conceptual Model; Interoperability Levels; Interoperability Agreements; and Governance).

Digitalization Strategies

The OECD (OECD Council on Digital Government Strategies 2014) recommends to the governments of its member states to develop and implement digital government strategies. In developing such strategies, governments should secure leadership and political commitment to the strategy; ensure coherent use of digital technologies across policy areas and levels of government; establish effective organizational and governance frameworks to coordinate the implementation of the digital strategy within and across levels of government; and strengthen international cooperation with other governments. When it comes to implementing these strategies, governments should develop clear business cases to sustain the funding and focused implementation of digital technologies projects; reinforce institutional capacities to manage and monitor projects' implementation; procure digital technologies based on assessment of existing assets; and ensure that general and sector-specific legal and regulatory frameworks allow digital opportunities to be seized.

Despite the fact that no one publicly disputes the importance of ICT for the economic and social development and the improvement of competitiveness of a country and despite the sometimes pompous declarations of governments to the contrary, the vision of the Greek governments pays negligible attention to ICT. The pertinent NRI subindex ranks Greece 129th among the 139 surveyed countries; moreover, the country has been ranked more or less similarly with regard to the same subindex in all the Global

Technology Report surveys since 2008. Political commitment is known to be a crucial success factor for a country's digitalization process (Nielsen, 2016). Furthermore, public procurement of ICT is known to drive innovation and encourage ICT uptake (van Ark 2014). The value of the subindex measuring the government's success in promoting ICT places the country in the 128th position and that of the subindex measuring the government's procurement of advanced technology places the country in the 132nd position. Why is this happening? The answer is certainly multidimensional, but a main—if not dominant—component of it is the almost complete ignorance of matters related to technology and the concomitant peculiar form of technophobia that permeates the vast majority of the politicians; this results in their inability to fully comprehend and far less appreciate the importance of ICT. Thus, ICT matters are invariably low in the agenda of the politicians in Greece; exceptions to the general rule do of course thankfully exist. Some of these exceptions are credited with the fact that Greece was one of the first European countries that formulated, in the late 1990s, a comprehensive strategic plan for the Information Society, entitled “Greece in the Information Society: Strategy and Actions” (Ministerial Council of Greece, 2002)¹; the strategy was adopted by the Ministerial Council in 1999. Note that technology in itself is not enough for improving government efficiency and effectiveness; critical enablers of digitalization additional to technical ones such as electronic identification and various registries are effective, accountable, democratic, and transparent governance models, a user-centric approach to implementation, cross-government innovation, coordination and implementation of strategies, programs, and projects (Nielsen and Yasouka 2014).

Unfortunately, that plan, as well as many others that followed, was never fully implemented, as is the case in Greece with almost any large-scale plan that, because of its scale, traverses the lifetime of more than one governments. In this case, the conservative (New Democracy) government formulated in 2005 its own “National Digital Strategy” for the period 2006–2013 (Informatics Committee 2005). When its turn came, the Committee for Information and Communications Technologies of the socialist (PASOK) government came up with its own “National Strategy for ICT and e-Government” (Committee for ICT 2012). The coalition government formed by the conservatives (New Democracy), the socialists (PASOK), and the leftists (Dimokratiki Aristera) developed its own strategies for “Digital Development” (General Secretariat for Telecommunications and Posts 2014) and “e-Government” (Ministry of Administrative Reform and e-Government 2014). Last, the coalition government between the radical left (SYRIZA) and the conservative ANEL that came into power in January 2015 have formulated a “National Next Generation Broadband Access Plan” (General Secretariat for Telecommunications and Post 2015) that will hopefully be used as one of the drives toward a more comprehensive digital strategy.² In August 2015, the Greek government committed, with Law 4336/2015 to develop, by December 2015, a three-year reform strategy, “the fundamental elements of which will

¹The referenced source is dated 2002, and contains an updated version of the original report, adopted by the Ministerial Council of Greece in 1999.

²Interestingly, the report was published in June 2015, but covers the period 2014–2020.

be the reorganization of the administrative structures, the optimization of the human resources, the enhancement of transparency and of accountability, e-Government, and a communication strategy.” In November 2016, a new National Digital Strategy for the period 2016–2021 (General Secretariat for Digital Policy 2016) was adopted. Like its predecessors, unless it is complemented, sooner rather than later, by a concrete action plan that will commit timelines and resources, it will fade away or will be superseded by its successor, without achieving its goals. A critical analysis of the Greek digitalization strategies up to 2010 can be found in (Anthopoulos et al. 2012).

One will justifiably wonder whether this phenomenon of frequent strategic changes is unique to Greece among European member states. Unfortunately, the literature does not provide comprehensive information on changes in national digital strategies in European countries. Therefore, it is not possible to accurately assess all the peculiarities of Greece in this respect. However, we note that long-term strategies, particularly those related to technology and other areas that require specialized expert knowledge, are best developed by the competent public administration bodies, possibly with external expert support and, naturally, under political guidance. This *modus operandi* ensures that the strategy will remain unchanged over and above the lifetime of a particular government; naturally, action plans implementing the strategy would be expected to change to reflect differing political priorities, but the overall strategic direction would remain more or less unaffected by a change in government. This *modus operandi* is very seldom the case in Greece where, unlike other European countries, such strategies are primarily formulated by the political leadership of the competent ministries and their cabinets, with little or no reference to public administration sources. It is, therefore, quite safe to conjecture that this local particularity is a crucial reason to which the phenomenon of frequent strategic changes in Greece may be attributed to.

One can conclude that Greece has not lacked ICT development and exploitation strategies in the past fifteen years. Some of these were truly comprehensive and applicable; had they been implemented, the country’s digitalization would certainly have ranked much more highly today. The most prominent reasons why this did not happen are the politician’s lack of appreciation of the importance of ICT and the overarching perpetual aversion of the Greek governments to objectively assess the success of a strategy devised by their predecessors and to build upon it by continuing successful actions and by taking corrective action where necessary.

Organizational and Governance Framework

The structure, the organization, and the staffing of the Greek public administration in the ICT sector are disappointingly insufficient. In terms of structure, the convergence between the information and communications technologies has not yet been reflected in the Greek public administration.³ This has resulted in a

³The structure of the public administration in Greece changes frequently, often following changes in government.

fragmentation of competences among at least four ministries (Ministry of Infrastructure, Transport and Networks; Ministry of the Interior and Administrative Reform; Ministry of the Economy, Development and Tourism; and Ministry of Finances) and several state-owned, specific purpose companies. This fragmentation creates a multitude of coordination and collaboration problems, not least among them being its divergence from the European Commission Organization and governance framework for ICT.

The first step toward creating a single government unit with complete and conclusive competence on ICT matters was taken in 2011, when a deputy minister with competence on electronic government was appointed. Unfortunately, this step was not complemented with the necessary reassignment of competences among co-competent ministries and was not as successful as it could and should have been. The committee on ICT, an interministerial committee of general secretaries, chaired by the deputy minister and reporting directly to the prime minister was also established at the same time. This structure was abolished by the government formed after the 2012 elections. Recently, (Anon. 2016c), in order to fulfill one of the conditionalities for the availability of structural funds to the country, the General Secretariat for Digital Policy was established, directly reporting to the office of the prime minister. It is, however, doubtful whether this unit will be able to function effectively, in light of the limited competences it has been endowed with.

This view apparently prevailed and resulted in the promotion of the Digital Policy to Ministerial level. On November 4, 2016, the Government Gazette published Presidential Decree 123/2016 (Anon. 2016a), with which the General Secretariat for Digital Policy, the General Secretariat for Telecommunications and Posts, and the General Secretariat for Information and Communications merged to form the Ministry of Digital Policy, Telecommunications and Media. This development, if exploited appropriately, may have significant positive impact on the progress of digitalization in Greece. It is worth noting that Law 4336/2015.

The Entrepreneurial, Judicial, and Regulatory Environment

The inefficiency of the Greek judiciary system is well known. As noted in (Panaritis 2014): “A well-functioning judiciary with an efficient court system is central to effective access to justice. This is not the case with the Greek judiciary, where cases usually proceed with substantial delay, multiple adjournments, and suboptimal guarantees of due process for victims and witnesses.” Indeed, Greece ranks 131st among the 139 surveyed countries of the NRI on the efficiency of the legal system in settling disputes and 86th on the efficiency of the legal system in challenging regulations. This adversely influences investments in ICT, particularly investments related to infrastructure, as speed in resolving disputes over regulation is essential in attracting telecom investment. Despite the fact that several proposals for alleviating several deficiencies of the judicial system have been made on several occasions

[e.g., (Skouris et al. 2013)] by prominent jurists and academics, little if at all progress has been achieved.

The multiplicity of laws, the complexity of legal provisions that are frequently changing, the extensive legal formalism and the focus on administrative procedures and their formal compliance rather than on the achievement of political and strategic objectives, as well as the existence of legal regulations in conflict have been identified as root causes of the inefficiency of the judicial system. These facts complicate and delay the administration of justice, while at the same time they cultivate potential ambiguous approaches and interpretations, leading often to the adoption of conflicting legal decisions and to increasing the frequency of appearance of corruption cases in the transactions between the state on the one hand and citizens and entrepreneurs on the other hand. According to data available to the administration in 2012 (Gritzalis 2014), during the last 30 years, 213 laws on taxation and income policy, 153 laws for public administration, 86 laws on education, and 51 laws on health were enacted. An indicative example is the Law 2190/94, which attempted to introduce meritocracy in hiring in the public sector; this law has been amended 43 times in the span of 10 years. It is not surprising, therefore, that Greece ranks 112th in the NRI subindex on the efficiency of the law-making bodies.

In terms of the entrepreneurial environment, Greece's worst ranking in the NRI (139th) corresponds to the number of days to enforce a contract. Furthermore, the country seems to continue to being unattractive to entrepreneurship, ranking 110th on the NRI subindex for total tax rate and profit percentage.

The Public Sector Administration

The obstacles that need to be addressed with regard to the Greek public sector are not only exogenous (e.g., lack of funding) but mainly rise from the flimsy, crowded pathologies and the indoor environment. Therein lie the roots of all malfunctioning processes governing the operation of public administration. Problems such as:

- the timid indecisiveness, sometimes the ignorance and the aged mentality of some politicians, who have learned to operate in terms of absolute fiscal laxity and the perpetuation of patronage practices that led to the continuous looting and tragic plundering of public wealth and to the promotion of corruption in citizens' consciousness;
- the well-known timeless pathogenesis of the political system concerning "political cost," but also the unsound focus on the concept of the "limited" remaining political time management, despite the public mandate that commands governments to govern and devise long-term policies instead of merely managing the political time;
- in some cases in the distant past, the misinterpreted consideration regarding the counterpoint of political planning and political surprise as standard expressions

of political power: “The process of the rationalization of political decisions through planning contradicts the most significant source of power for the political personnel in our country, namely the strength of the informal, the unannounced, the unpredictable” (Spanou 1996);

- the apparently incorrect consideration, and at the same time daily practice of the majority of both the government and the civil servants, that every government is the simple sum of hermetically isolated ministerial authorities of vertical perception, with the widespread sense of “ownership” of entire policy areas, instead of the administratively correct, in terms of flexibility and effectiveness, approach of “horizontal operational and administrative flexibility per political action and not only vertical per administration sector” (Venizelos 2008);
- the weak and ineffective central supervision and the stunted presence of a central administrator of every reform agenda, in combination with a political culture that is diachronically oriented to the production of legislation instead to the coordination of actions and the achievement of substantial results of public policies for citizens and entrepreneurship;
- the ignorance, indifference, inertia, and resistance of several senior executives in some of public sector’s central services of major importance, sometimes in the context of heterogeneous purposes, not only during the introduction of changes in general, but mostly toward e-Government, as well as its well-known leading capabilities in international scale, its ultimate utility and irreplaceable contribution to all public sector operating parameters;

result in an oppositional and often hostile relationship between the citizen and the state (Gritzalis 2014).

Most of the above problems are due to “... a part of a political perception in exercising policy, which, although it led -and it was known that it did so- to fictitious social and economic benefits, at the same time it actually generated political party benefits, distorting reality, transferring the bill to future years and being totally indifferent about this...” (Giannitsis 2012).

The result of all the above is an oppositional and often hostile relationship between the citizen and the state (Simitis 2013).

Equally important is the issue of bureaucracy. Communication among public services, citizens, and entrepreneurs is characterized by morbid features which intertwine inextricably: unprecedented paperwork, as a result of tragically irrational operational structures; lack of administrative rationale in the allocation of responsibilities; maintaining complex and time-consuming procedures; and absence of critical e-Government services utilization, with few bright exceptions. In every public service, procedures are evolving having often become an end in itself for the administration, without the existence of any mechanism for ex-ante, ongoing, and ex-post evaluation.

The necessity for simplified procedure flow that support either the provision of services to citizens and entrepreneurship or audit requirements is clearly outlined in academic textbooks on Management Sciences. Unfortunately, within Greece’s public administration, multiple unnecessary procedures exist, which merely serve

the irrational administrative structures and their users, while brutally pestering citizens and entrepreneurs, unbearably displeasing and gradually discouraging the civil servants themselves, and inflicting high system operational costs. At the end of 2011 (Gritzalis 2014), 23,142 responsibilities of all administrative types were recorded. The problem is exacerbated by another pathogenesis that of the shared competences among ministries and agencies. In this overall context, there are no integrated scientific evidence for the efficiency of individual organizational units, either in the General Government in whole, that is Central Government (central administration, public entities, private entities, hospitals, social security institutions, local government primary and secondary), or in the majority of state-owned companies and organizations.

Alongside the bloated bureaucracy, there is a torment to which thousands of citizens and entrepreneurs are subjected daily: seeking certificates of all kinds in paper, which are required by the administration. Citizens visit a public service to apply for documents; they visit it again to collect the certificates in paper so as, then, to adduce them at another service for putting through their case. The Citizen Service Centers operate as a form of one-stop shops on behalf of citizens, by undertaking to find some certificates. As positive legislative development, however, we note the automatic intergovernmental search for and retrieval of documents, following the consent of the individual concerned. The documents that can be automatically searched for and retrieved are mainly intermediate documents, required more often than not in the handling of complex administrative procedures. Nevertheless, the search and retrieval mode of documents in paper among public services remains procedurally complex, traditional, too slow, and very costly.

Multiple scientific papers and articles have been published, both in the international and the Greek scientific literature and in the press, on the phenomena of corruption in public life—perhaps the biggest problem of Greek society; these analyze the causes and attempt to tackle the phenomenon. It is true that overall “... the causes of our lag include interests’ grids that maintain the system of clientelism, the corporatist rents and requirements, the ensuring of asymmetric benefits in relation to the services offered, the overgrown public sector, the exploitation by the economically strong...” (Simitis 2013). According to the study by Transparency International on corruption (Transparency International 2015), Greece shared the 58th position among 168 countries with Romania, a great improvement over the 94th position of 2012, but still 26th among the EU member states with a score of 46 against the European average of 67.

An important initiative to enhance transparency in public life, particularly in a period of major social and economic crisis, was the enactment of Law 3861/2010 for transparency, in the context of which “... the obligation to display acts of government and administrative bodies on the Internet was introduced, in an effort to achieve maximum publicity of government policy and administration activities, supporting transparency of government action and, as a result, responsibility and accountability on the side of the entities that exercise public authority” (Anon. 2010). This broad obligation of online publicity and its absolute linkage to the enforceability of the acts of the administration enhances the citizens’ ability to

exercise their constitutionally protected rights such as the right to equal participation in the information and consequently the rights associated with this information, such as the right to participate in social, economic, and political life and the enhancement of the information society.

A Way Forward

A widely accepted definition of the term “smart government” does not seem to exist. Several alternative definitions can be found in (Anthopoulos and Reddick 2016). If we adopt the view that smart government is the next step in government transformation after e-Government that includes the implementation of smart governance initiatives, it follows that we should not expect much in the coming years in the direction of smart government implementation in Greece. This in turn means that the accordant benefits will not make themselves apparent to the Greek citizens for some time yet to come, unless appropriate action is taken.

The findings in the previous section clearly indicate directions where the Greek government should engage actively with a view toward improving the country’s ability to benefit from the full exploitation of the capacity of digitalization. The discussion in the sequel follows the structure of and provides proposals in the areas discussed in the previous section.

Greece needs to realize the strength of its human capital, which unfortunately is being drained away in the past nine years. In doing so, it has to acknowledge education as an investment that can greatly assist in overcoming the financial crisis, as many countries in similar situations have done. This practically means not only significantly increasing rather than reducing the public funds allocated to all education levels, but also reforming tertiary education toward enhancing its capacity to interact with industry in exploiting its research results and thus enabling it to unleash its full potential of contributing to the economic development.

Reentering a trajectory of opening up data will enable further development of electronic services, not exclusively by the government itself, which in turn is expected to improve e-participation and transparency in decision making as well. The adoption of a decentralized enterprise service bus for government-to-government (G2G) services based on the European Interoperability Reference Architecture (European Commission ISA Programme 2016) and the update of the e-GIF, as many countries show recently, would significantly improve interoperability.

Acknowledging the fact that in the current state of affairs in the country very little room for political maneuvering exists in formulating and implementing digitalization strategies will hopefully allow reaching reasonable consensus on medium- to long-term digitalization strategies among political parties. If this can be achieved, a digitalization strategy needs to be agreed upon and complemented by concrete action plans that will include commitments on timeline and resources. Finally, these action plans need to be followed until their completion and the strategy needs to be evaluated continuously as well as upon its completion.

The challenge is not simply to introduce digital technologies into public administrations, but to integrate their use into the public sector modernization and reform efforts. One easily concludes, therefore, that the rationalization and redeployment of public administration is needed now, more than ever before. The first pillar of reforms concerns the immediate initiative regarding the extensive expansion of the codification of legislation in order for obsolete regulations to be abolished, for conflicting provisions of law to be set aside and, consequently, the discovery and implementation of the legislation in force to be facilitated. Furthermore, actions for policy evaluation by sector are needed, namely control actions with reference to the extent to which the existing legislation objectives are fulfilled (fitness checks). At the same time, consultation activities, impact assessment, and strengthening of explanatory memoranda of legislative proposals should be amplified. In any case, the rapid transition of Greece from better regulation to smart regulation seems to be the optimal solution.

The activation of extrajudicial settlements, the faster promotion of integrated electronic solutions to support the administration of justice (e-Justice), and the actions to reduce the required time of the administration of justice are a *sine qua non* condition, of great urgency.

Concurrently, the gradual elimination of the requirement for citizens' physical presence at public agencies, through the development and utilization of a multitude of useful and friendly digital e-Government services, can significantly improve the level of service provided, while it is also expected to have a significant contribution to the reduction of corruption.

Toward the same direction, the introduction and utilization of the announced, in 2010, Citizen Card could be a major contribution. A Citizen Card could be the main means for the rapid transition to the era of digital public administration. According to its design, acting as the "digital key" to enter the world of digital services, the Citizen Card will allow citizens who so wish, to certify their identity in the digital world, i.e., to enable digital authentication, so as to enable access to a significant range of electronic services provided or developed by public administration and the private sector as well, and to make it possible to create digital signatures of documents under the current legislation. Unfortunately, even today Greece remains firmly laggard in the EU with regard to introduction and utilization issues of the Citizen Card, while the vast majority of the other EU member states have already advanced to Citizen Cards of the second and the third generation.

For the consolidation of endogenous problems, it is apparent that the social agreement for launching the development of a national reform plan for the redesign of state organization and public acts is behooved.

The national reform plan should include (Gritzalis 2014):

- (a) Review and redesign of the structure of administrative services, first within the Central Government and then within the other parts of the General Government, with emphasis on decentralized organizational structure and operation, aiming at supporting regional development which is of major significance, in contradiction to any expression of dogmatic adherence to outdated and ineffective administrative

centralism. At the same time, the evaluation process of the administrative structures, with indicators measuring effectiveness and efficiency in the context of objective implementation, should aim at business reengineering of the currently operating administrative units, in order to eliminate the multitude of existing overlaps, to limit the organizational spread of the administration, to record and evaluate public servants' specific knowledge and skills, and then to essentially activate their mobility and reallocation among departments and General Government agencies, under clear rules and criteria, for the benefit of the quality of services provided to citizens and entrepreneurship.

- (b) Redesign and simplification of business processes. In this context, the development of digital services for the automated operation of these simplified processes with emphasis on secure data exchange services among public agencies (G2G services) is of great significance. The development of such services will catalytically contribute to the gradual nullification of certificates in paper, to the effort to reduce the discomfort of civilians and entrepreneurship drastically and to the negation of any condition that facilitates corruption.
- (c) Continuing actions for the enhancement of human resources in public administration and reallocation of personnel, whenever required, in the context of transparency and objectivity, and the systematic and continuous monitoring of civil servants' performance as well. Needless to mention that the necessary reform of public administration cannot occur as a mechanistic result of the introduction of institutional reforms or the appliance of simplified procedures. It requires strategic planning for human resources development and implementation of policies aiming at improving human resources management and at cultivating factors of inspiration, incitement, and mobilization. In this context, what is expected, among others, is the state's activation in the cultivation of a new organizational culture that will negate approaches which resist to any kind of organizational change. It also requires the inducement to support actions for promoting organizational innovations, the utilization of the public administration personnel's qualifications, and the reinforcement of mobility, based on the knowledge, abilities, and skills they possess, with incentives and without partial initiatives by the state, the continuous and systematic monitoring of performance, and the assessment of personnel as well on the basis of objective implementation. Finally, it requires the continuous increase of participation of public administration personnel in well-targeted training and education activities in order to broaden their knowledge and to develop new skills to the benefit of their work performance.
- (d) Obviation of the spatial dispersion of the services of General Government entities so that service efficiency is improved and optimal utilization of public buildings is accomplished, contributing to the achievement of the fiscal objectives as well.

Concluding Remarks

Analyzing different sources of information on the state of digitalization of countries reveals advantages and shortcomings of aspects of the economy and of the political and government framework that can be used for formulating proposals for action. We have used Greece as a case study for applying this methodological approach and have come up with interesting results. This is a good indication that the same approach can be used in analyzing similar aspects in other countries as well.

The case of Greece can provide useful examples for other countries to both avoid and follow. For example, realizing that the human capital is paramount in improving the state of digitalization is necessary, but the practice of merely increasing quantity without ensuring quality will not allow the full exploitation of the offered advantage. The development of infrastructure should balance the demand for use, avoiding delays in covering existing demand, anticipating early future needs, but also ensuring that financial resources are used prudently and timely. Strategic direction should be long term, guided by as few as possible decision-making centers, as much as possible independent of political change and complemented with realistic action planning and efficient and informative evaluation.

The efficiency and effectiveness of the public administration is a key factor in any attempt to improve digitalization. In the case of Greece, in recent years, the voices of those in society, entrepreneurship, and in the public sector that describe the problem of a public administration which moves without goals, without planning, without coordination, structurally unsuitable to produce quantifiable work, have multiplied and seek immediate solution.

The efficient and effective redesign of administrative structures, with emphasis on the decentralized organizational structure and operation, on the decision of merger or the dismantling of selected public bodies, and on the development of applications for electronic communication between public services (government-to-government services) is a challenge (Gritzalis 2014). The implementation of the proposed solutions will lay the foundations for the integration of interoperable systems that achieve secure exchange of information, with emphasis on citizens' privacy, according to the relevant EU Directives.

In each exogenous system, the human factor is the key role. Any attempt to reform the public sector must take into account the use of available human resources, by cultivating a new organizational culture, by adopting periodic evaluation, by continuous training, and motivation. The proposed solutions, part of robust strategic planning results, can create a sustainable competitive and productive model of the Greek public sector, taking into account best practices from other EU member states.

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